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A FLORA OF HOLLISTER RANCH

SANTA BARBARA COUNTY, CALIFORNIA

Martin Fletcher



THE HERBARIUM
Department of Biological Sciences
University of California, Santa Barbara
Publication Number 2
1983

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Cover: Alegria Holding Pond - View from Rancho Real, northward over holding pond to foothills of Santa Ynez Mountains. Submerged habitats are dominated by Zannichellia palustris and Potamogeton foliosus. Emergent Wetlands are characterized by Typha domingensis and Rumex spp. (margin of pond). The Rincon Formation (center) is covered by Cismontane Introduced Grassland, and the Vaqueros Formation (background) is covered by Chaparral.

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FOREWORD

The Publication Series of The Herbarium, Department of Biological Sciences, University of California, Santa Barbara, serves as a publication vehicle for UCSB students, faculty, staff, and other associated investigators. Manuscripts accepted for publication include primarily those with a floristic emphasis and those for which voucher specimens are deposited at UCSB. Papers published in this series might not be available otherwise to the general scientific and lay communities. This endeavor is consistent with the goals of the UCSB Herbarium, summarized as follows: (1) to maintain a botanical collections repository; (2) to provide educational programs; (3) to provide botanical services; (4) to function as a research facility within the Department of Biological Sciences.

UCSB Herbarium Publication Number 2, A Flora of Hollister Ranch, Santa Barbara County, California, is a product of floristic research conducted by a UCSB student, Martin Fletcher. His investigation was done to fulfill in part the requirements of the Environmental Studies Program, and resulted in a senior thesis from which this publication was adapted. Funding for printing, graphics and other publication costs was provided from extramural sources, including contributions from residents of Hollister Ranch, namely the Jackson Browne family. Word processing was provided by Deborah Fletcher and graphics by Dar Roberts. Two art students, Jan Popson and Susan Lafferty, received credits in Independent Studies for their illustrations of plants done specifically for this publication. The Editorial Committee and I are grateful for all assistance provided during the production of this flora.

Wayne R. Ferren, Jr.

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Introduction and History

Hollister Ranch is located approximately 25 miles west of Santa Barbara, California, and west of Highway 101 between Gaviota State Park and Point Concepcion (Fig. 1). The Ranch extends from the mean high tide line to the crest of the Santa Ynez Mountains, encompassing approximately 14,000 acres (Fig 2). The study area consists of the intertidal zone, the beach, and the mountainous undeveloped portions of the Ranch.

Hollister Ranch lies on the southern limb of an east-west trending anticline that forms the Santa Ynez Mountains. The canyons of the Ranch are relatively short, up to 3 miles long, and trend north-south. An abrupt cliffline rises 50 to 100 feet from the beach to an old marine terrace. The marine terrace varies in width from 100 feet at the eastern end to nearly half a mile at the western end of the Ranch. The topography is patterned by subparallel south-dipping rock beds of varying composition. The erosion resistant beds of the Monterey and Vaqueros Formations form the high points through the foothills and the Matilija Sandstone Formation lies along the mountain crests on the northern side of the Ranch.

Chumash Indians were early inhabitants of the area before the period of Spanish settlement in the late 18th century. In 1794 Captain Francisco de Ortega was given a grazing permit from the Spanish government and established Rancho Nuestra Senora del Refugio, which included present day Hollister Ranch. In 1853 Colonel William Welles Hollister traveled west from Ohio, arriving in California in 1854. During the late 1800s he purchased several ranchos in the area, including portions of Captain Ortega's land. The Southern Pacific

FIG. 1. Location of Hollister Ranch: Hollister Ranch is situated near Point Concepcion, the site where the coast of California changes from a predominantly north-south orientation to a predominantly east-west orientation. The Ranch occurs approximately 25 miles west of Santa Barbara and extends about 8.5 miles along the coast between Point Concepcion and Gaviota State Beach.

FIG. 1. LOCATION OF HOLLISTER RANCH

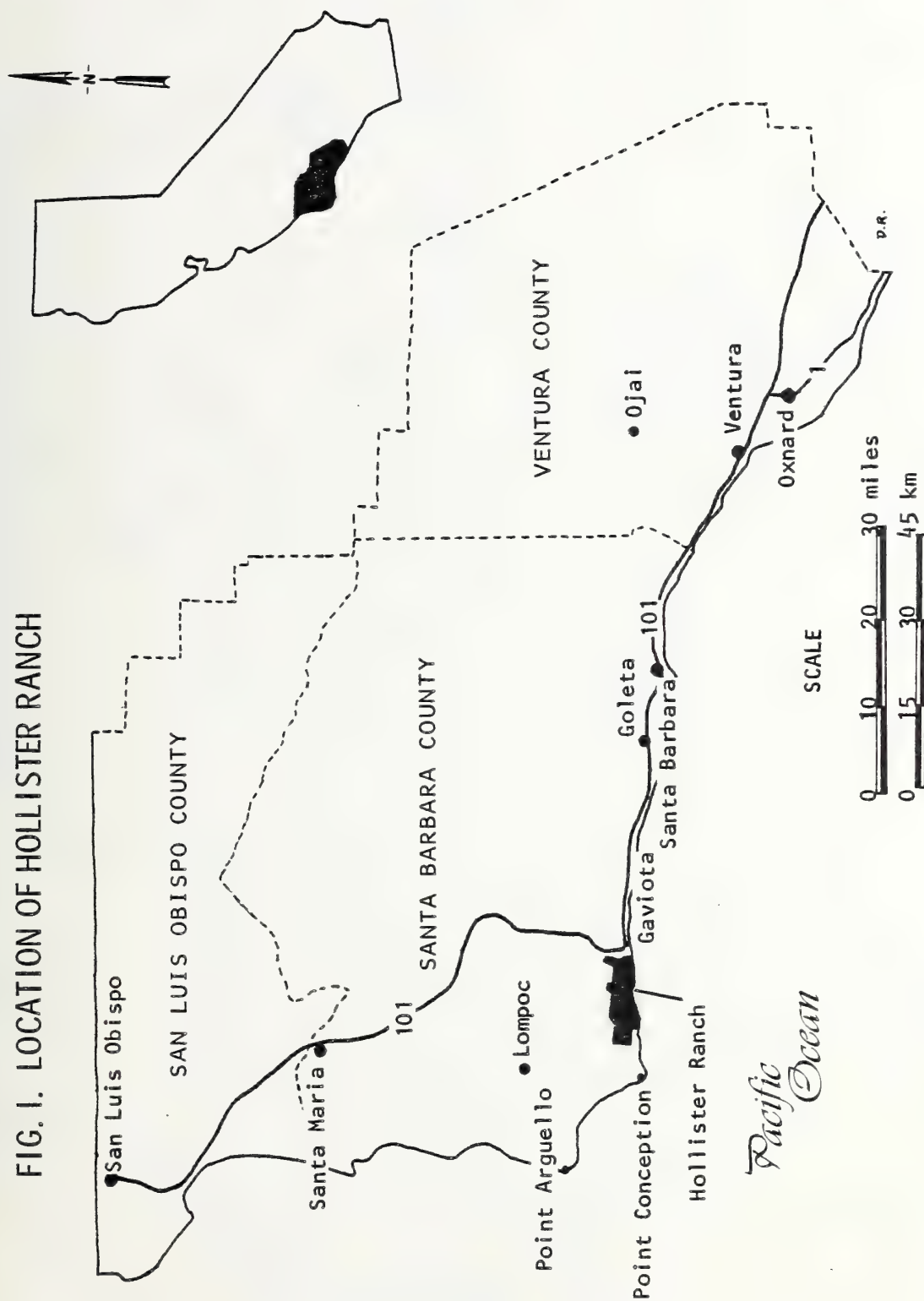
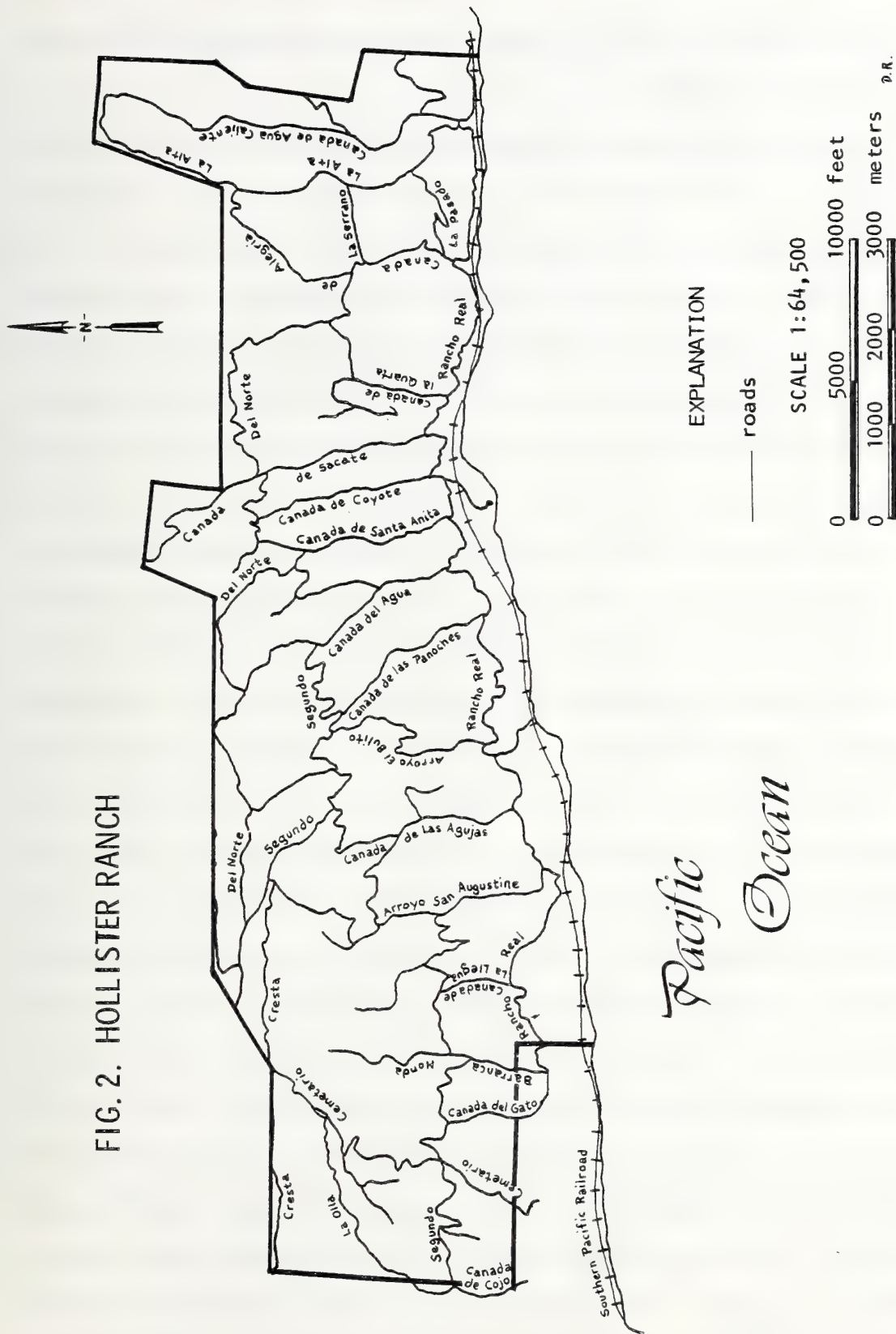


FIG. 2. Hollister Ranch: Hollister Ranch occurs primarily south of the crest of the Santa Ynez Mountains. Numerous canyons, trending in a north-south direction, dissect the area. Roads provide access into remote areas of the northern portion of the Ranch. However, these roads are often inaccessible during the winter months because of roadbeds softened by rains. Most canyons have roads in them to provide access to the various 100 acre parcels.

FIG. 2. HOLLISTER RANCH



Railroad crossed the Ranch in 1887, separating the coastal bluffs from the remainder of the Ranch.

The Ranch as it now exists remained in the Hollister family until the 1960s. At that time it was sold to a Chicago law firm (MGIC) and subdivided into 100 acre parcels. The Ranch is operated as a cooperative: cattle are run over much of the rangeland, and the roads and three beach cabanas are maintained collectively. The only public access to the Ranch is at the eastern end. A gatehouse is operated at this entrance to limit access to parcel owners and their guests, thus ensuring the privacy of the owners.

Though records are limited, it is known that cattle, sheep, hogs, and ornamental plants all have been raised or cultivated on the Ranch. Of these, cattle and cattle-related management probably have been the most environmentally damaging. This is primarily due to the relatively extensive rangelands grazed over many years by cattle, as compared to more localized impacts of the other uses. Many naturalized plants have proliferated in rangelands, eliminating many native plants and eventually taking over habitats. Four of the most noxious weeds are Carduus pycnocephalus (Italian Thistle), Cynara cardunculus (Cardoon), Silybum marianum (Milk Thistle), and Ehrharta calycina (Veldt Grass). The coastal plain was cleared of the native Coastal Sage Scrub ostensibly to improve the rangeland. Some of this area is still used to cultivate grain. The native flora has been almost completely eliminated from areas used for feeding, gathering, and watering. However, native plant habitats have survived on the coastal plain in protected fields and on the coastal side of the railroad tracks. The remainder is relatively pristine, but much of the area is

severely overgrown, due to the interruption and prevention of the natural fire cycle. In addition, owners are beginning to clear and plant more land with avocados and other cash crops.

Climate

Hollister Ranch is characterized by a Mediterranean climate, with mild, moist winters and moderately warm, rainless summers. Point Concepcion, a few miles to the west of Hollister Ranch, has often been treated as a major climatic boundary (Barbour et al., 1975), with relatively cool and moist conditions to the north and warmer and drier conditions to the east and south. The area is subjected to wind from the north, west and southeast. The prevailing wind is from the west-northwest (Little, 1975).

The climate is directly affected by the prevailing westerly transoceanic air currents. These currents often produce stronger winds on the west-facing coast north of Point Concepcion and in the adjacent east-west trending Santa Ynez Valley than where the Hollister Ranch is situated along the south-facing coast east of Point Concepcion. Therefore, when moderate to strong winds are moving up the Santa Ynez Valley, they often spill over the crest of the Santa Ynez Mountains onto the Hollister Ranch as northerly overland wind. This wind typically crosses the Santa Ynez Mountains as far east as Gaviota Pass at the eastern end of the Ranch. Beyond this, the mountains are high enough to shield the coast (DeMarrais et al., 1965).

Wind is almost continuous. Tests for the Point Concepcion Liquid Natural Gas site show that wind levels are of moderate to high velocity, above 10 mph 50% of the time (Little, 1975). The monitoring station is on the coast, in the lee of the mountains, and does not measure all of

the stronger prevailing afternoon winds. Higher wind velocities would be expected along the exposed northern border of the Ranch. Wind-pruning of trees and shrubs can be observed on all exposed locations.

During the winter months the regional trend is for night and early morning strong down-canyon and offshore air movement, driven by continental cooling. Because of the proximity of the Ranch to the ocean and the small volume of its canyons, this cold air drainage phenomenon is not usually strongly developed. In the afternoons the prevailing westerly winds and interior convection give rise to regional onshore winds. North of Point Concepcion this air movement is channelled up the Santa Ynez Valley. This pattern frequently causes the afternoon winds to cross the mountains bordering the south side of the valley and to blow down the canyons of the Ranch, creating a local offshore condition. Less frequently the wind blows subparallel to the coast.

During the spring months less intense interior cooling during the night yields weaker morning offshore conditions. On the other hand, stronger daytime convection in the interior results in stronger afternoon winds on the Ranch. The local wind direction patterns are much the same as in the winter, only stronger. Spring is typically the windiest season of the year.

During the summer months the weather stabilizes, typically with calm mornings and light to moderate onshore air movement in the afternoon. Continental cooling is of greatest effect during the fall. Regional offshore breezes are generated at night and are especially strong where large canyons occur. However, the Ranch has no major canyons and is not much affected by these offshore breezes, except that

they may neutralize the incoming prevailing westerly wind.

The Southern California coastline is subjected to an atmospheric inversion layer that traps cool moist air at low elevations. This layer often traps significant concentrations of moisture that condenses as fog or low clouds in the early morning hours. The inversion layer rises slowly during the course of the day, allowing the cooler air to dissipate as the temperature rises. If the inversion rises far enough, the fog evaporates. The base of the inversion is often below 500 feet in the early morning hours and rises above 1,000 feet by late afternoon 60% of the time (Little, 1975). The diurnal rise of the base of the inversion is relatively slow during the cooler months and increases during the warmer summer months. The fog is heaviest and most frequent in the late spring and early summer mornings when warmer air comes in contact with the cool ocean water and then is drawn over the land. This process usually coincides with interior warming. Fog occurrence decreases as the ocean temperature increases during the summer. Fog dissipation is enhanced in the summer by the accelerated elevation of the inversion layer.

The average annual temperature is 59° Fahrenheit (15° Centigrade), with an average daily high of 70° F (21° C) and an average daily low of 47° F (8° C). Precipitation occurs primarily between November and April, with recorded amounts of rainfall between 6" (15 cm) and 21" (53 cm) for Point Arguello to the west and between 10" (25 cm) and 24" (61 cm) for Salsipuedes gauging station to the north. Data were collected between 1973 and 1981 (NOAA 1973-1981). Greater amounts of rain may fall near the ridgetops. Most rain-bearing storm systems move into the area from the northwest, but because of cyclonic circulation patterns,

the wind during the storms comes from the south and east. Once the storm is past, the wind changes to a northwesterly direction, following the low pressure center inland. Infrequent light summer showers occur, but they are of little consequence to plant growth.

Primary factors affecting the local environment are the frequent strong winds, the consistently mild temperatures which rarely dip below freezing, and the variable and light winter rainfall. The warm air, coupled with a nearby relatively cold ocean, creates coastal overcast during the night and morning, which burns off as the inversion layer is raised. This overcast condition is a common occurrence between the months of April and October. Typically it is most persistent in the late spring and early summer and quite unusual in the late winter and early spring. Spring winds are the strongest and fall winds are the calmest.

Geology and Soils

The Ranch is located just south of the Coast Ranges Geologic Province on the westernmost portion of the Transverse Ranges Province. This area is geologically active. One major fault, the southern branch of the Santa Ynez Fault, strikes through the eastern portion of the Ranch, traversing Agua Caliente and Alegria Canyons and occurring on the coast just east of Sacate Canyon. This fault has about 0.5 miles (0.8 km) of right lateral displacement with several small subsidiary faults attached to it. One of these can be seen in the roadcuts at the mouths of Agua Caliente and Alegria Canyons, and another can be seen near the head of Santa Anita Canyon.

The Santa Ynez Mountains are a large upright anticline with an evenly dipping (40-60 degrees on the Ranch) southern limb, generally

termed a homocline. Because the Ranch lies almost exclusively on the southern limb, only one-half of the anticline can be seen there. The other half of the anticline lies to the north of the Ranch.

The following, in order of youngest to oldest and from the coast to the northern property line, is a discussion of the formations (Fig. 3) that occur on the Ranch (Norris & Webb, 1976; Dibblee, 1950). Included is a discussion of the soil types on each formation (Shipman, 1981).

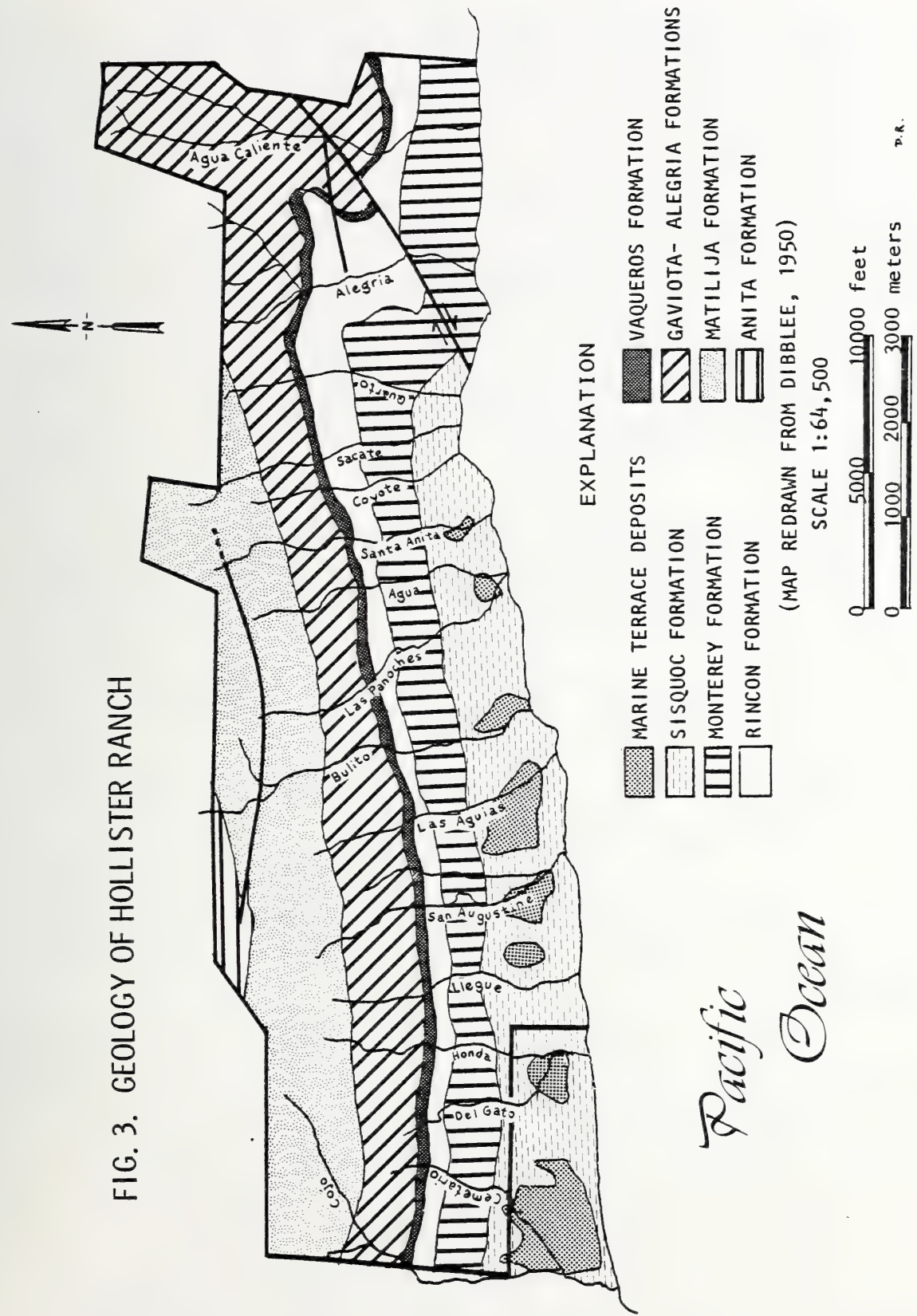
The Sisquoc Formation is a massive, white, weathered diatomaceous shale from the Pliocene Epoch. This formation underlies much of the coastal plain. The most visible examples of this formation crop out at the points at Bulito, Drakes, and Sacate Beaches. This formation was cut by wave action into a Pleistocene marine shelf, following which it was overlain by a layer of clay, and then uplifted above the level of wave activity during the latter portion of the Pasadenan Orogeny (Norris & Webb, 1976). The Marine Terrace Deposits, a mixture of middle Pleistocene Epoch clays and underlying shale beds, form the dominant soil type. The deposits are composed of Agueda Silty Clayloam, Botella Shaly Clayloam, Concepcion Fine Sandyloam, and Diablo Clay.

The Monterey Formation is a hard, laminated, platy, siliceous shale interbedded with softer shale and limestone beds from the Miocene Epoch. It forms the steep rise away from the coastal plain. The most visible examples of this formation are near the mouths of Agua Caliente and Alegria Canyons. The soil compositions over the formation are called Lopez Rock Outcrop and degrade into Santa Lucia Shaly Clayloam. The soil layer is thin and at times nonexistent.

The Rincon Formation is a gray clay-shale from the Miocene

FIG. 3. Geology of Hollister Ranch: Hollister Ranch is situated on the southern limb of the Santa Ynez Anticline. Therefore, the rocks within the Ranch dip to the south. Differential erosion has created the diverse, east-west trending topography of the Ranch, revealing a cross-section of the various formations in the area.

FIG. 3. GEOLOGY OF HOLLISTER RANCH



Pacific Ocean

Epoch. It can be seen in all of the canyons about 1/3 of the way to the top. The soil is of the Nacimiento Complex and is noted for its slumping and sliding.

The Vaqueros Formation, deposited in the Miocene Epoch, is a gray sandstone matrix that supports fossiliferous green-brown pebbles and fragments. This material crops out as a narrow strip forming the first open rock faces as one proceeds north from the coast. An abrupt contact occurs between the clays of the Rincon Formation and the sandstones of the Vaqueros Formation. The soil type is the Gaviota Rock Outcrop.

The Gaviota Formation is composed of massive siltstones from the Oligocene Epoch and forms the buff colored rocks to the north of the Vaqueros Formation. This is a thick complex in Cojo and Alegria Canyons, but is rather thin in the other canyons. The soil type is the Gaviota Sandyloam.

The Alegria Formation is composed of red to buff sandstones and clays from the Oligocene Epoch. The formation is mostly clay at the Ranch. The soil type is the Los Osos Maymen Clay and the Los Osos Clayloam. This formation is the marine equivalent of the Sespe Formation.

The Matilija Formation is composed of thick bedded, buff-colored arkosic sandstones from the Eocene Epoch. This formation is found along the crest to the west of Santa Anita Canyon and has its most spectacular outcrops above San Augustine and Cemetary Canyons. The soil type is the Maymen Rock Outcrop complex.

The Anita Formation is composed of massive red and green foraminiferal claystone from the Eocene Epoch. This formation has a

limited exposure on the north side of Long Canyon near the head of Bulito Canyon. The soil types are the Maymen Fine Stonyloam and Los Osos Clayloam.

Methods

Thirty-five trips were taken to the Hollister Ranch between 1979 and 1983. On these trips, an attempt was made to visit as many plant communities as possible in order to collect all plants that were flowering at any one time. A series of specific collecting sites were revisited when particularly high species diversity was noted on previous trips.

Due to the inaccessibility of the Ranch to the general public, there were many individuals from the scientific community that wished to visit the Ranch. This proved convenient for all of us. I had valuable assistance from professors, graduate students, and staff members of the Santa Barbara Botanic Garden and the UCSB Herbarium. Several trips were made to locate or collect specific plants, including Quercus parvula var. parvula and Eriodictyon capitatum. Visitors included specialists in grasses, oaks, and wetlands.

Most portions of each of the canyons were visited at least once, with the exception of cultivated areas, homesites, and inaccessible areas of heavy brush.

Once collected and tagged the plants were taken to the UCSB Herbarium and pressed. Specimens were identified and then checked against the Herbarium collection. Plants for which identification was still uncertain were taken to the Herbaria at the Santa Barbara Botanic Garden and the Santa Barbara Museum of Natural History, and/or were identified by local experts. The family Poaceae was checked by Paul

Reisenz (University of California, Santa Barbara), the family Asteraceae by Barry Tanowitz (University of California, Santa Barbara), the genus Castilleja by Larry Heckard (University of California, Berkeley), and the collection of wetland plants by Wayne Ferren (University of California, Santa Barbara). The overall collection was checked by Steve Junak (Santa Barbara Botanic Garden) and Clifton Smith (Santa Barbara Museum of Natural History).

Plant Communities

There are 10 upland plant communities and 10 wetland classes on the Hollister Ranch. Figure 4 illustrates the occurrence of 6 major upland communities, but does not distinguish among grassland types or show wetland classes. Two communities, Mixed Evergreen Forest and Central Coastal Scrub, closely resemble central California communities and contain some of the more uncommon plants. The remaining 8 have affinities with southern California communities. Significant differences can be noted between the current vegetation map (Fig. 4) and a vegetation map drawn in 1941 (Fig. 5). Most noteworthy of these is the replacement of much of the grassland by Coastal Sage Scrub. Portions of the Oak Woodland have expanded and/or were not shown on the original map.

The plant community classification presented below is an attempt to divide a complex system into more discernable units. The plants listed here are examples of characteristic species and do not represent a complete community list. Intraspecific taxa are listed in the Annotated Catalogue.

Classification of Upland Vegetation
(adapted from Cheatham and Haller, 1975)

Partially Stabilized Coastal Dunes

Southern Partially Stabilized Coastal Dunes

Dominance Types: Abronia maritima
Ambrosia chamissonis
A. psilostachya
Atriplex leucophylla

Coastal Bluff Scrub

Southern Coastal Bluff Scrub

Dominance Types: Atriplex semibaccata
A. lentiformis
Encelia californica
Eriogonum parvifolium
Mesembryanthemum crystallinum
Mirabilis californica

Coastal Scrub

Coastal Sage Scrub (Figs. 6,7)

Dominance Types: Artemisia californica
Encelia californica
Eriogonum fasciculatum
Calystegia macrostegia
Salvia mellifera

Central Coastal Scrub

Dominance Types: Castilleja affinis
Fragaria vesca
Mimulus aurantiacus
Polystichum munitum
Potentilla glandulosa
Rubus ursinus
Toxicodendron diversilobum
Vaccinium ovatum

Grasslands

Cismontane Native Grasslands

Dominance Types: Eschscholzia californica
Lasthenia chrysostoma
Lupinus spp.
Melica imperfecta
Orthocarpus spp.
Poa scabrella
Stipa lepida
S. pulchra

Cismontane Introduced Grasslands (Figs. 8,9)

Dominance Types: Avena barbata
Brassica nigra
Bromus diandrus
B. mollis
B. rubens
Conium maculatum
Eschscholzia californica

FIG. 4. Hollister Ranch Plant Communities: The vegetation of Hollister Ranch is closely related to the underlying geology. The clay soils of the Sisquoc, Monterey, Rincon, Alegria, and Anita formations support grassland and Coastal Sage Scrub communities. The sandstone of the Vaqueros, Gaviota, and Matilija Formations is more resistant to erosion than the above, often forming rocky exposures. These formations support Chaparral, Oak Woodland/Forest, and Mixed Evergreen communities. Canyon bottoms of the upper canyons support Coast Live Oak Forest and Forested Wetlands. Most wetlands were generally too limited to be illustrated here.

FIG. 4. HOLLISTER RANCH PLANT COMMUNITIES

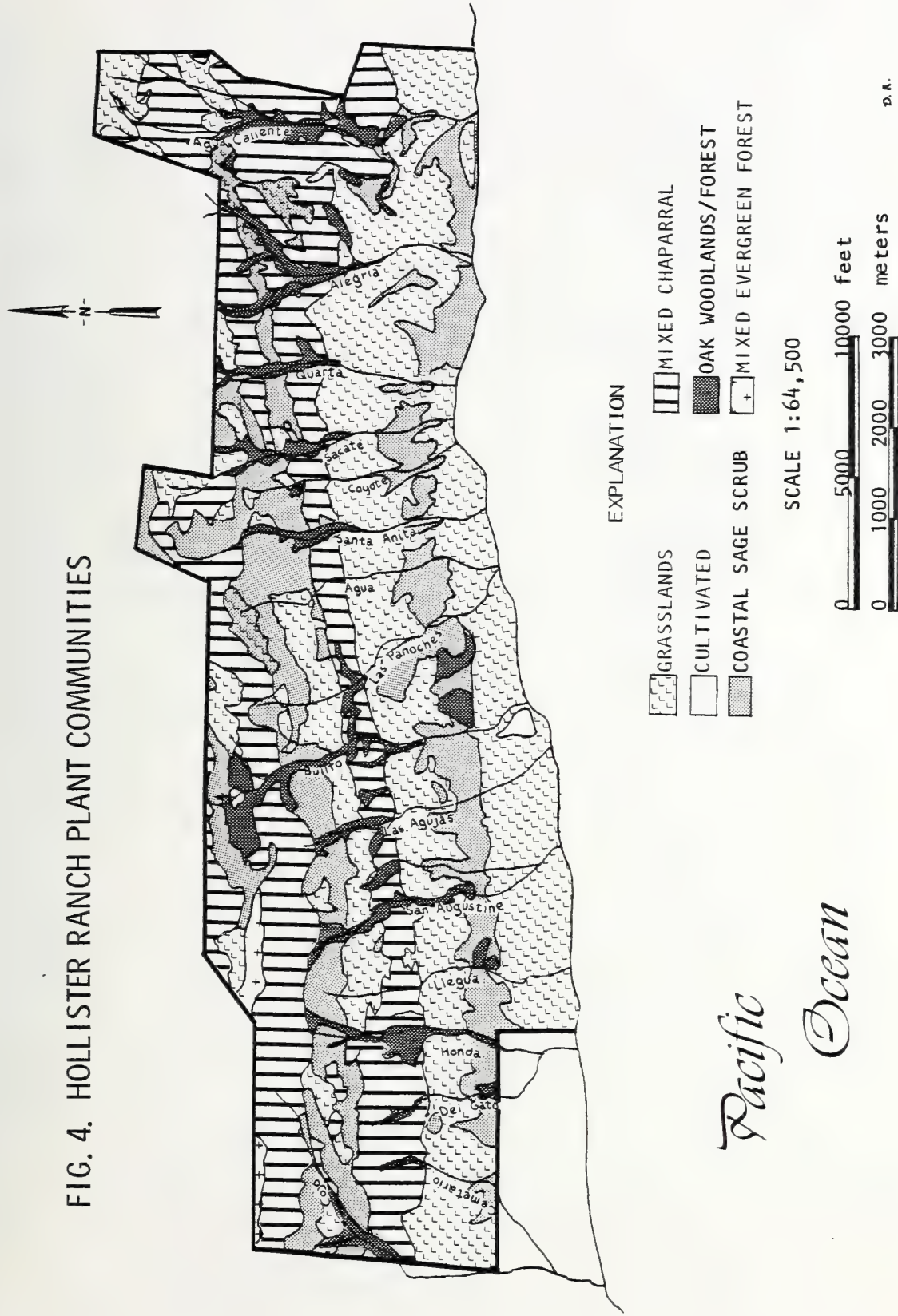


FIG. 5. Hollister Ranch Plant Communities in 1941: The vegetation of Hollister Ranch has apparently changed over the last 40 years (see Fig. 4). The area covered by Coastal Sage Scrub, Mixed Chaparral, and Oak Woodland/Forest is greater now than that illustrated here. Conversely, the area covered by grasslands and Chamise Chaparral is less now than in 1941.

FIG. 5. HOLLISTER RANCH PLANT COMMUNITIES IN 1941

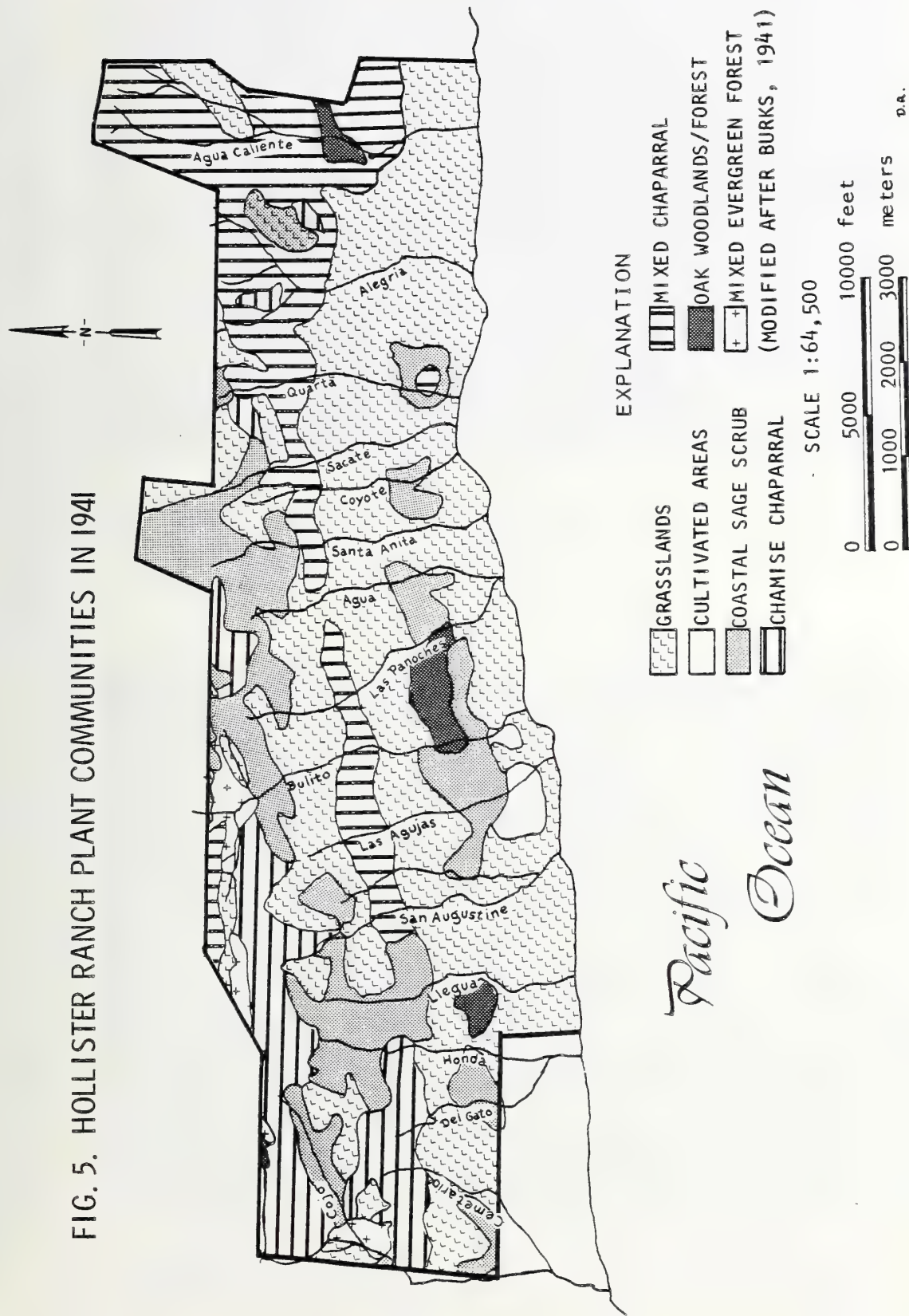




Fig. 6. HORSESHOE FAULT: West rim of Santa Anita Canyon, view to east; Coastal Sage Scrub community, dominated by *Artemisia californica*, *Heteromeles arbutifolia* and *Salvia mellifera*.



Fig. 7. ALEGRIA CANYON: West rim, view to east. Oak Woodland/Forest (background) in canyon bottom and on slopes, dominated by *Quercus agrifolia*, *Rubus ursinus*, *Toxicodendron diversilobum*; Coastal Sage Scrub (foreground), dominated by *Artemisia californica*; and Cismontane Native Grassland (foreground), dominated by *Lasthenia chrysostoma*, *Lupinus nanus*, *Orthocarpus purpurascens*, *Poa scabrella*, and *Sisyrinchium bellum*, among others.



Fig. 8. DE LA CRESTA OVERLOOK: View to south from central portion of ranch above San Augustine Canyon. Plant communities proceeding inland from the coast (background) include Cismontane Introduced Grassland, Chaparral, Coastal Sage Scrub, Mixed Chaparral, and Forested Wetland and Oak Woodland/Forest in canyon bottoms. These communities overlay corresponding changes in soil and bedrock type.



Fig. 9. DEL NORTE OVERLOOK: Central portion of ranch along north property line above Agua Canyon; view to northwest into San Julian area. Property line dissects photograph from the upper left to the lower right-hand corner. Plant communities within ranch boundary include Central Coastal Scrub mixed with Cismontane Native Grassland.

Festuca spp.
Lasthenia chrysostoma
Layia platyglossa
Lolium perenne
Lupinus nanus
Orthocarpus purpurascens
Raphanus spp.
Sisymbrium spp.

Chaparral

Mixed Chaparral (Figs. 10,11)

Dominance Types: Adenostoma fasciculatum
Arctostaphylos purissima
Ceanothus cuneatus
C. papillosus
C. spinosus
Cercocarpus betuloides
Eriodictyon capitatum
Heteromeles arbutifolia
Lepechinia calycina
Pickeringia montana
Quercus parvula

Chamise Chaparral

Dominance Types: Adenostoma fasciculatum
Ceanothus megacarpus
C. spinosus
Rhamnus crocea

Woodlands and Forests

Southern Coastal Oak Woodland

(including Coast Live Oak Forest) (Fig. 12)

Dominance Types: Bromus madritensis
Galium aparine
Heteromeles arbutifolia
Quercus agrifolia
Rhamnus californica
Rubus ursinus
Sambucus mexicana
Soliva daucifolia
Sonchus oleraceus
Toxicodendron diversilobum
Venegasia carpesioides

Mixed Evergreen Forest

Dominance Types: Comarostaphylos diversifolia
Gaultheria shallon
Lithocarpus densiflorus
Polystichum munitum
Pteridium aquilinum
Ribes sanguineum
Vaccinium ovatum



Fig. 10. DE LA CRESTA OVERLOOK: View to southwest over Cojo Bay and Government Point from above San Augustine Canyon; Mixed chaparral covers outcrop of Matilija Formation; dominants include *Arctostaphylos purissima* and *Ceanothus cuneatus*.



Fig. 11. DE LA CRESTA OVERLOOK: View to east from above San Augustine. Mixed Chaparral is dominated by *Adenostoma fasciculatum*, *Arctostaphylos purissima*, *Ceanothus cuneatus*, *Eriodictyon capitatum*, *Pickeringia montana*, and *Quercus parvula* var. *parvula*.



Fig. 12. BULITO (LONG) CANYON: Canyon bottom, view to east. Oak Woodland/Forest is dominated by *Quercus agrifolia* with an understory of *Bromus* spp., *Dryopteris arguta*, *Galium aparine*, *Oryzopsis miliacea*, *Ribes malvaceum*, *Rubus ursinus*, and *Stachys bullata*.



Fig. 13. HEAD OF BULITO (LONG) CANYON: View to south. Communities include Mixed Evergreen Forest (background), dominated by *Lithocarpus densiflorus*, *Comarostaphylis diversifolia*, and *Vaccinium ovatum*; Central Coastal Scrub (center & right), dominated by *Mimulus aurantiacus*, *Potentilla glandulosa*, and *Toxicodendron diversilobum*; and Cismontane Native Grassland (left center & foreground), dominated by *Dodecatheon clevelandii*, *Elymus condensatus*, *Melica imperfecta*, *Poa scabrella*, and *Ranunculus californicus*.

Classification of Vegetated Wetlands

(Contributed by Wayne R. Ferren Jr.)

Hollister Ranch is characterized by a strikingly variable topography that provides many habitats, some of which support numerous vegetated wetland types. These wetlands can be grouped into four systems (Cowardin et al., 1979) as follows: 1) the Marine System, consisting of the open ocean overlying the continental shelf and its associated high energy coastline, with salinities exceeding 30‰, but as treated herein including only intertidal habitats that support marine angiosperms; 2) the Estuarine System, including subtidal and intertidal wetlands usually confined to coastal embayments or other physiographic features that are at some point during the year open to the ocean, receive freshwater runoff, and are flooded by water with an average annual low flow salinity greater than 0.05‰ from ocean-derived salts; 3) the Riverine System, containing wetlands in riverbeds or streambeds that when vegetated are characterized by nonpersistent plant types and are flooded by water with an average annual low flow salinity less than 0.05‰ from ocean-derived salts; and 4) the Palustrine System, including wetlands that when vegetated are characterized by persistent plant types (or if nonpersistent vegetation occurs the habitat is not a riverbed or streambed), and that are flooded by water with an average annual salinity less than 0.05‰ from ocean-derived salts. The following hierarchical classification illustrates in some detail the characteristics of the majority of wetland types. Ranking of wetlands and terminology have been adapted from Cowardin et al. (1979).

SYSTEM: Marine (Fig. 14)
SUBSYSTEM: Intertidal
CLASS: Aquatic Bed
SUBCLASS: Rooted Vascular
WATER REGIME: Regularly Flooded
DOMINANCE TYPES: Phyllospadix scouleri
P. torreyi
Zostera marina
EXAMPLES: rocky intertidal zones; west of Gaviota Beach

SYSTEM: Estuarine (Fig. 15)
SUBSYSTEM: Subtidal
CLASS: Aquatic Bed
SUBCLASS: Rooted Vascular
WATER REGIME: Permanently Flooded
DOMINANCE TYPES: Ruppia maritima
EXAMPLES: estuaries; mouth of Santa Anita Canyon

SUBSYSTEM: Intertidal
CLASS: Emergent Wetland
SUBCLASS: Nonpersistent
WATER REGIME: Irregularly Flooded
DOMINANCE TYPES: Cotula coronopifolia
Plantago major
Scirpus cernuus
EXAMPLES: mud banks, small estuaries; mouths of Agua Caliente, Alegria and Santa Anita Canyons

SUBCLASS: Persistent
WATER REGIME: Regularly Flooded, Irregularly Exposed
DOMINANCE TYPES: Scirpus maritimus
S. pungens
Typha domingensis
EXAMPLES: tidal channels, small estuaries; mouths of Agua Caliente, Alegria and Santa Anita Canyons

SUBCLASS: Persistent
WATER REGIME: Irregularly Flooded
DOMINANCE TYPES: Distichlis spicata
Jaumea carnosa
EXAMPLES: marsh along floodplains of tidal channels, small estuaries; mouths of Agua Caliente, Alegria and Santa Anita Canyons

CLASS: Scrub/Shrub Wetland
SUBCLASS: Broadleaved Deciduous and Evergreen
WATER REGIME: Irregularly Flooded
DOMINANCE TYPES: Artemisia douglasiana
Atriplex lentiformis
Baccharis douglasii



Fig. 14. ALEGRIA BEACH: Rocky Intertidal Marine Wetlands, dominated by *Phyllospadix* and algae; Coastal Bluff Scrub, dominated by *Artemisia californica*, *Atriplex semibaccata*, *Encelia californica*, *Eriogonum parvifolium*, and *Mirabilis californica*; and Cismontane Introduced Grassland (top of Marine Terrace Deposits), dominated by *Amsinckia* spp., *Brassica nigra*, *Bromus* spp., *Conium maculatum*, and *Lupinus* spp., among many others.



Fig. 15. DRAKES BEACH AREA, ESTUARY AT MOUTH OF SANTA ANITA CANYON: Estuarine Emergent Wetlands, dominated by *Distichlis spicata*, *Scirpus californicus*, *S. maritimus*, and *S. pungens*; Estuarine Scrub/Shrub Wetlands, dominated by *Baccharis pilularis*, and *Salix lasiolepis*; and background areas covered by Coastal Sage Scrub and Cismontane Introduced Grassland. The Southern Pacific Railroad bed occurs along the northern margin of the estuary and scrub vegetation.

B. pilularis
Nicotiana glauca
Salix lasiolepis

EXAMPLES: transition area between Coastal Dune
Scrub or Coastal Sage Scrub and Estuarine
Emergent Wetland Vegetation; Agua Caliente,
Alegria and Santa Anita Canyons

SYSTEM: Riverine

SUBSYSTEM: Upper Perennial (Fig. 16)

CLASS: Emergent Wetland

SUBCLASS: Nonpersistent

WATER REGIME: Permanently and Seasonally Flooded

DOMINANCE TYPES: Apium graveolens

Equisetum hymale

Rorippa nasturtium-aquaticum

EXAMPLES: upper streambeds; Bulito and Santa
Anita Canyons

SUBSYSTEM: Lower Perennial

CLASS: Emergent Wetland, Unconsolidated Shore

SUBCLASS: Nonpersistent, Vegetated

WATER REGIMES: Permanently and Seasonally Flooded;
Intermittently Exposed

DOMINANCE TYPES: Agrostis semiverticillata

Cotula coronopifolia

Eleocharis parishii

Petunia parviflora

Polypogon interruptus

P. monspeliensis

Rorippa nasturtium-aquaticum

Scirpus cernuus

Xanthium strumarium

EXAMPLES: Agua Caliente and Alegria Canyons

CLASS: Aquatic Bed

SUBCLASS: Rooted Vascular (largely submerged plants)

WATER REGIME: Permanently Flooded, Intermittently Exposed

DOMINANCE TYPES: Potamogeton foliosus

Zannichellia palustris

EXAMPLES: Streambeds; Santa Anita Canyon

SUBCLASS: Floating (nonrooted plants)

WATER REGIMES: Permanently Flooded, Intermittently Exposed

DOMINANCE TYPE: Lemna gibba

EXAMPLES: Honda and Sacate Canyons

SUBSYSTEM: Intermittent (Fig. 17)

CLASS: Streambed

SUBCLASS: Vegetated

WATER REGIMES: Seasonally Flooded or Intermittently Exposed

DOMINANCE TYPES: Apium graveolens

Carduus pycnocephalus



Fig. 16. SANTA ANITA CANYON: Stream system supporting Upper Perennial Riverine Wetlands, dominated by *Rorippa nasturtium-aquaticum* in rocky stream bed; Palustrine Emergent Wetlands, dominated by *Carex barbarae*, *C. senta*, *Juncus xiphioides* and *Scirpus microcarpus* on stream margins; Palustrine Scrub/Shrub Wetlands, dominated by *Rhamnus californica*, *Rubus ursinus*, and *Toxicodendron diversilobum* on banks; and Palustrine Forested Wetland, dominated here by *Quercus agrifolia* and additional species (*Platanus racemosa* and *Populus trichocarpa*) downstream.

Sonchus oleraceus
Urtica holosericea
EXAMPLES: streambeds, sandbars; Sacate Canyon

CLASS: Unconsolidated Shore
SUBCLASS: Vegetated
WATER REGIMES: Seasonally or Intermittently Flooded
DOMINANCE TYPES: Brassica nigra
Chenopodium murale
Conyza canadensis
Euphorbia supina
Medicago polymorpha
Melilotus indicus
Nicotiana glauca
Urtica urens
Verbena lasiostachys
Vicia benghalensis
V. sativa
EXAMPLES: Sacate and San Augustine Canyons

SYSTEM: Palustrine

CLASS: Aquatic Bed
SUBCLASS: Floating
WATER REGIMES: Permanently, Semipermanently, Seasonally
and Temporarily Flooded
DOMINANCE TYPE: Lemna gibba
EXAMPLES: holding ponds and reservoirs

SUBCLASS: Rooted Vascular
WATER REGIMES: Permanently, Semipermanently, Seasonally
and Temporarily Flooded
DOMINANCE TYPES: Potamogeton foliosus
Zannichellia palustris
EXAMPLES: holding ponds and reservoirs

CLASS: Unconsolidated Shore
SUBCLASS: Vegetated
WATER REGIMES: Seasonally and Temporarily Flooded
DOMINANCE TYPES: Gnaphalium luteo-album
G. palustre
Juncus bufonius
Xanthium strumarium
X. spinosum
EXAMPLES: margins of holding ponds and reservoirs;
Agua Canyon

CLASS: Emergent Wetland (Fig. 18)
SUBCLASS: Persistent
WATER REGIME: Saturated
DOMINANCE TYPES: Adiantum capillis-veneris
Apium graveolens
Dryopteris arguta
Eleocharis palustris



Fig. 17. ALEGRIA CANYON: View to north from Rancho Real. Riverine Emergent Wetlands and Lower Perennial Streambed, dominated by *Agrostis semiverticillata*, *Apium graveolens*, *Brassica nigra*, *Polypogon interruptus*, and *Scirpus cernuus*, among others; Palustrine Scrub/Shrub Wetlands, dominated by *Baccharis glutinosa*, *Salix exigua*, and *S. lasiolepis*. Background includes Cismontane Introduced Grassland and Chaparral.



Fig. 18. ALEGRIA CANYON STREAMBED: Lower Perennial or Intermittent Riverine Wetlands, nonvegetated or occasionally with *Cotula coronopifolia* and *Rorippa nasturtium-aquaticum*; and Palustrine Emergent Wetlands, dominated by *Distichlis spicata*, *Typha domingensis*, and *T. latifolia*.

Equisetum telmateia
Juncus patens
J. textilis
J. xiphioides
Mimulus cardinalis
Scirpus microcarpus
Typha domingensis
Venegasia carpesioides
Woodwardia fimbriata

EXAMPLES: seeps, flats; Agua Caliente, Alegria, Bulito and Santa Anita Canyons

WATER REGIMES: Seasonally or Temporarily Flooded (1)

DOMINANCE TYPES: Apium graveolens
Cynodon dactylon
Distichlis spicata
Phalaris aquatica
Plantago major
Rumex crispus

EXAMPLES: floodplains; Agua Caliente and Alegria Canyons

WATER REGIMES: Seasonally or Temporarily Flooded (2)

DOMINANCE TYPES: Artemisia douglasiana
Aster chilense
Lilium humboldtii
Solidago californica
Urtica holosericea

EXAMPLES: associates of Forested Wetland along streambanks of upper canyons

WATER REGIMES: Permanently, Semipermanently, or Seasonally Flooded (1) (Fig. 16)

DOMINANCE TYPES: Carex barbarae
C. senta
Eleocharis parishii
Equisetum telmateia
Helenium puberulum
Juncus xiphioides
Scirpus microcarpus
Woodwardia fimbriata

EXAMPLES: streambeds and banks; Upper Santa Anita Canyon

WATER REGIMES: Permanently, Semipermanently, or Seasonally Flooded (2)

DOMINANCE TYPES: Eleocharis palustris
Juncus xiphioides
Rumex salicifolius
Typha domingensis
T. latifolia

EXAMPLES: holding ponds and reservoirs

SUBCLASS: Nonpersistent

WATER REGIMES: Saturated, Seasonally or Temporarily Flooded

DOMINANCE TYPES: Carduus pycnocephalus
Cotula coronopifolia
Juncus bufonius
J. xiphioides
Polypogon interruptus
Rorippa nasturtium-aquaticum
Scirpus cernuus

EXAMPLE: disturbed seeps, roadside margins;
Santa Anita Canyon

CLASS: Scrub/Shrub Wetland (Fig. 17)

SUBCLASS: Broad-leaved Deciduous and Evergreen

WATER REGIMES: Seasonally and Temporarily Flooded

DOMINANCE TYPE: Salix lasiolepis

EXAMPLES: floodplains and lower stream banks;
Agua Caliente and Santa Anita Canyons

WATER REGIMES: Saturated, Seasonally or Temporarily
Flooded

DOMINANCE TYPES: Baccharis douglasii
B. glutinosa
B. pilularis
Clematis ligusticifolia
Cornus stolonifera
Haplopappus venetus
Keckiella cordifolia
Nicotiana glauca
Rhamnus californica
Rubus ursinus
Salix laevigata
S. lasiolepis
Sambucus mexicana
Toxicodendron diversilobum
Venegasia carpesioides

EXAMPLES: associates of Forested Wetland Vegetation,
stream banks of upper canyons or saturated
soil of seeps and lower canyons

CLASS: Forested Wetland

SUBCLASSES: Broad-leaved Deciduous and Evergreen

WATER REGIMES: Saturated, Seasonally or Temporarily
Flooded

DOMINANCE TYPES: Heteromeles arbutifolia
Platanus racemosa
Populus trichocarpa
Quercus agrifolia
Salix laevigata
S. lasiandra
S. lasiolepis

EXAMPLES: riparian vegetation along stream banks, and
seeps on north-facing slopes; Alegria,
Quarta and Santa Anita Canyons

Flora

There is a botanical transition in the vicinity of the Hollister Ranch that corresponds with the transitions in climatic and geological provinces. In the Coast Ranges Geologic Province the mountain ranges trend north-south, thus creating canyons that trend predominantly east-west. In the Transverse Ranges Geologic Province the orientation is reversed, with the mountain ranges trending east-west and the canyons predominantly trending north-south. This has strong phytogeographic consequences. The mountains generally have expansive south-facing exposures, producing a relatively more xeric (dry) local climate. Because there are few north-facing slopes on the Ranch, and because most of these slopes are at relatively high elevations, relatively mesic (moist) local climates that support the plant communities with northern affinities are restricted in their distribution.

Much of the Ranch has been left comparatively pristine. For example, only 23.3% of the 397 taxa are introduced. There are two major areas of disturbance: the clay-rich Marine Terrace Deposits and Rincon Formation. In these two areas 58.6% of the plants are introduced. Some common weeds include Avena spp. (Wild Oats), Brassica spp. (Mustard), Bromus spp. (Bromegrass), Conium maculatum (Poison Hemlock), Festuca spp. (Fescue), Phalaris aquatica (Harding Grass), Raphanus spp. (Radish), and Vicia spp. (Vetch). The 152 taxa occurring on the Marine Terrace Deposits and the Rincon Formation indicate a lower diversity than on the rest of the Ranch. Out of 282 total taxa found on the remainder of the Ranch, only 11.0% were introduced. It should be noted that some plants occur in both disturbed areas and undisturbed areas.

Some interesting geographical relationships were found on the Ranch. On the Marine Terrace Deposits and the Rincon Formation the predominant community is Cismontane Introduced Grasslands. Some startling exceptions can be noted, however. In a moist area near Rancho Real on the west rim of Las Panoches Canyon, 21 taxa, including many natives, were collected within an area 20 yards square. This is a much higher species diversity than is usually found in the Cismontane Introduced Grasslands of Hollister Ranch. Another exception can be found on the coast side of the railroad tracks. In this area of little disturbance a subspecies of Morning-Glory mostly confined to the Channel Islands, Calystegia macrostegia ssp. macrostegia, was found among numerous natives. Only one other collection of this variety has been made on the mainland. In addition to this plant, two other species which are found commonly on the Channel Islands also were found on the Ranch. A yellow form of Castelleja affinis var. affinis was found on the ridge above Agua Canyon and Quercus parvula var. parvula (Santa Cruz Island Oak) (Fig. 20) was found on the ridge west of Bulito Canyon.

The Monterey Formation is covered by the Coastal Sage Scrub Community and a few oaks. The area underlain by this formation is mostly undisturbed. No rare or unusual plants have been collected here.

The Vaqueros and Gaviota Formations have an unusual collection of Chaparral plants on the north-facing slopes, but on the south-facing slopes Haplopappus ericoides var. blakei (Mock Heather) Chrysopsis villosus var. sessiliflora, Orobanche bulbosa, Artemisia dracunculus (Tarragon), Erysimum suffrutescens var. grandifolium, and Aristida adscensionis, typical Coastal Sage

species, occur. In addition, these formations are the only locations on the Ranch of several more common Coastal Sage Scrub plants, such as Rhus integrifolia (Lemonade Berry) and Silene laciniata (Indian Pink). Several seeps or waterfalls, created by differential erosion rates at the contact between the Rincon and Vaqueros Formations, are the only sites of Adiantum capillis-veneris (Maidenhair Fern), Cornus stolonifera (Creek Dogwood), and Epipactus gigantea (Stream Orchid).

The Alegria Formation is covered by Cismontane Native Grasslands and Coastal Sage Scrub communities and can be distinguished from the Gaviota and Matilija Formations by its lack of a major chaparral component. In the canyon bottoms the streams are rock-bottomed and covered by Forested Wetlands. Oak Woodlands spread across the canyon floor and up the canyon walls. Soliva daucifolia, Platystemon californicum (Creamcups), Myrica californica (Pacific Wax Myrtle), and Cordylanthus littoralis are the more unusual species of this formation.

The Matilija Formation is covered by many plants of northern affinities. The Matilija Formation forms the crest of the Santa Ynez Range and it is in this area that the only extensive north facing slopes are found. Six upland communities and 8 wetland classes occur on soils derived from this formation. The former include Mixed Chaparral, Mixed Evergreen Forest, Chamise Chaparral, Oak Woodland, Cismontane Native Grasslands, and Central Coastal Scrub. The more northern of these communities are Mixed Evergreen Forest and Central Coastal Scrub.

Two plants currently under review for inclusion on the Federal List of Endangered and Threatened Species (U.S. Fish and Wildlife Service, 1980) occur in the Mixed Chaparral along the ridge crest west of Bulito

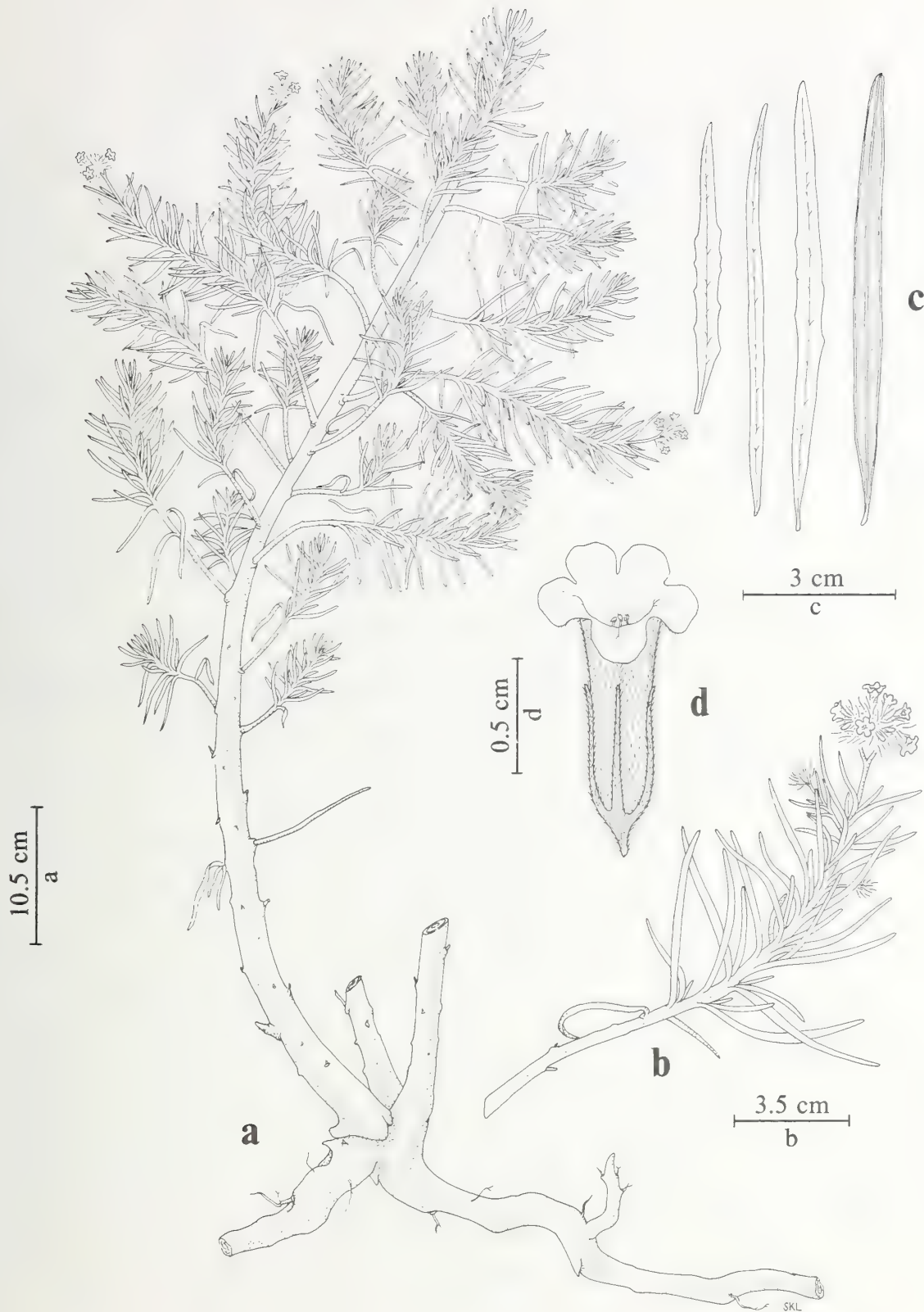


Fig. 19. *Eriodictyon capitatum* Eastw. Lompoc Yerba Santa.

a. Habit: illustrating primary roots and glabrous, glutinous stem; b. Branch: densely leafy towards tip, with subcapitate, cymose, usually terminal inflorescences; c. Leaves: linear or linear-lanceolate, with entire, crenate, or sparsely dentate margins, glabrous and glutinous upper surfaces, tomentose lower surfaces, and with subpetiolate bases; d. Flower: calyx lobes linear and villous, corolla lavender, tubular-funnelform, pubescent. A shrub endemic to portions of coastal northern Santa Barbara County and Hollister Ranch.

Canyon. Eriodictyon capitatum (Lompoc Yerba Santa) (Fig. 19) is common in previously disturbed areas. Quercus parvula var. parvula (Santa Cruz Island Oak) (Fig. 20) usually grows in undisturbed areas. The Hollister Ranch population has been noted (Nixon, 1980) as the best mainland example of the latter. Both of these plants are included on the California Native Plant Society Inventory of Rare and Endangered Vascular Plants (Smith et al., 1980). Quercus parvula var. parvula is listed as rare but not endangered, with a stable population; Eriodictyon capitatum is considered limited to a few highly restricted populations and endangered in a portion of its range, with a declining population. Additionally, Arctostaphylos purissima is a segregate species of the A. pechoensis Dudl. complex, and is listed as rare but not endangered (Smith et al., 1980). Two other locally uncommon plants, Erigeron sanctarum and Satureja douglasii (Yerba Buena), also are found in this habitat.

The Mixed Evergreen Forest grows on many of the north-facing slopes of the Matilija Formation and contains Gaultheria shallon (Salal), Polystichum munitum (Sword Fern), Vaccinium ovatum (Huckleberry), Comarostaphylos diversifolia var. planifolia (Summer Holly), Arbutus menziesii (Madrone), and Lithocarpus densiflorus (Tanbark Oak). All of these plants are found commonly in the Coast Ranges to the north, but are not found much farther inland at this latitude.

The Cismontane Native Grasslands and Central Coastal Scrub communities of the Matilija Formation contain one range extension from San Luis Obispo County, Agoseris apargioides, and several interesting lilies, Calochortus albus, Calochortus catalinae,

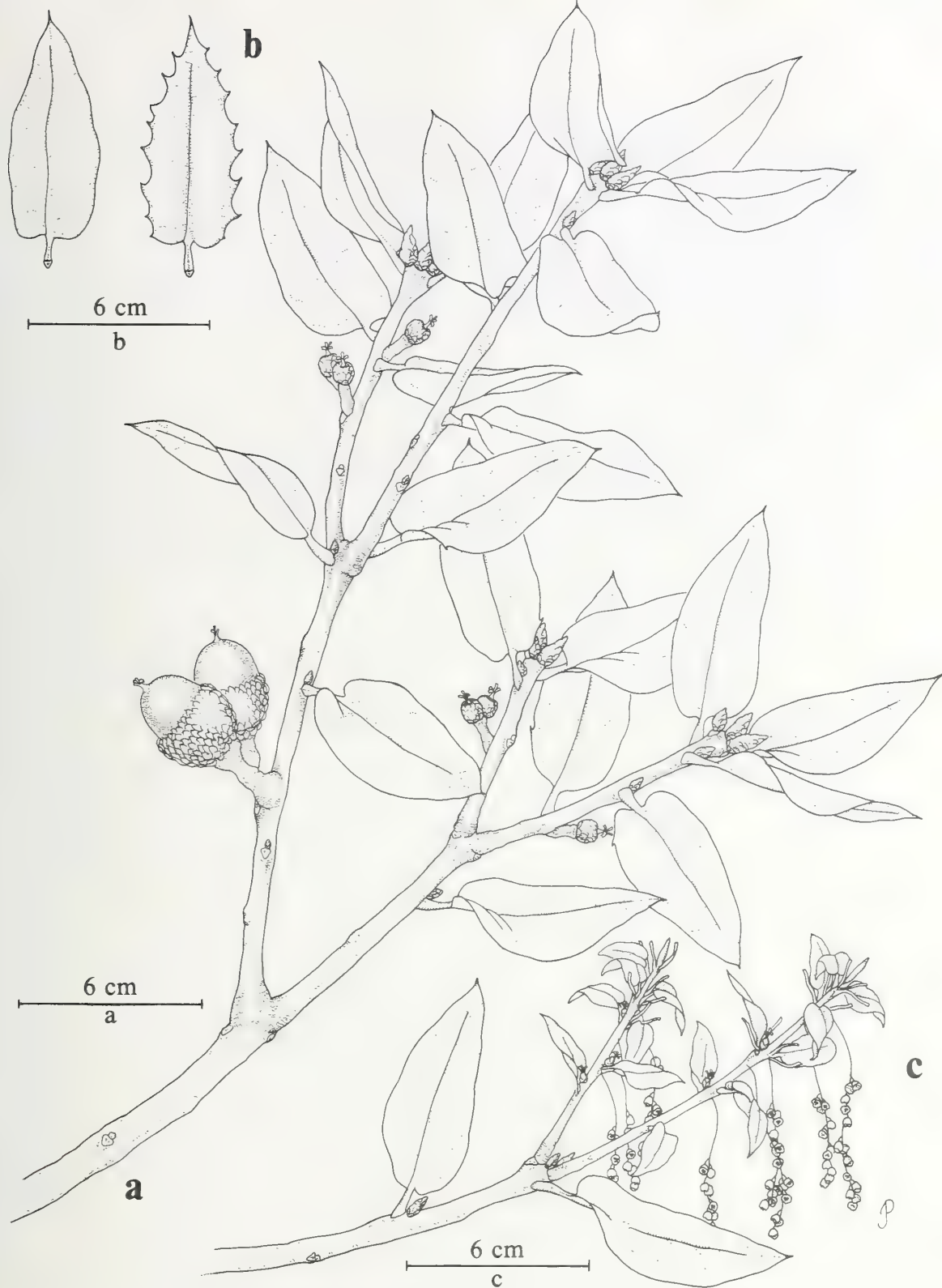


Fig. 20. *Quercus parvula* Greene var. *parvula*.

a. Branch: illustrating branchlets with first year and second year acorns; b. Leaves: including the more typical, entire-margined, undulate type, and the occasional spinose type; c. Branchlets: containing new leaves and male and female flowers. A rhizomatous, colonial shrub often growing from large, subterranean burls, and restricted to Santa Cruz Island, Hollister Ranch, and La Purisima Hills in Santa Barbara County.

and Fritellaria biflora. This area is almost untouched by introduced species with the exception of a few grasses, including Bromus diandrus, Avena barbata, and Ehrharta calycina, and on desiccated pond margins by such plants as Conyza canadensis and Xanthium spinosum.

Three other notable plants at Hollister Ranch are Poa howellii (Smith, 1976), Vicia gigantea, and Berula erecta. The latter has only been collected once on the Ranch, at the base of Sacate Canyon, and V. gigantea reaches its southern limit in Bulito Canyon.

Summary and Comments

With some 800 specimens now deposited in the UCSB Herbarium resulting from 35 collecting trips spanning two and one-half years, much progress has been made toward understanding the flora of this complex and little studied area. Several unusual discoveries of local botanical interest have been made. In addition, this flora contributes to greater understanding of the transition zone between the northern and southern California coastal communities. The most important aspect of this study is the more precise focus upon the actual botanical resources of this region.

Catalogue of the Vascular Plants

Data accompanying each plant in the catalogue are arranged as follows: scientific name; common name; habit (annual, biennial or perennial (herb), shrub, tree); frequency (abundant, common, scattered, occasional, rare), abundance where applicable (locally abundant, locally common); plant community (e.g., Mixed Chaparral, Oak Woodland, Cismontane Native Grasslands, etc.); geologic bedrock information (e.g., Vaqueros, Matilija Formations); specific locational information for narrowly restricted or rarely collected plants (e.g., Cojo, Bulito Canyons); origin (native unless noted otherwise); flowering dates; voucher specimen numbers (Fletcher collections unless noted otherwise); literature citations when plant is listed by another source as occurring on the Ranch.

The term abundant refers to a plant that occurs as a dominant in a community or that is found frequently in several communities; common refers to a plant that occurs frequently, but is not a dominant in a community; scattered refers to a plant that occurs in a restricted habitat, although not in restricted numbers; uncommon refers to a plant that was only found once by this collector; and rare refers to finds cited as unusual in A FLORA OF THE SANTA BARBARA REGION, CALIFORNIA (Smith, 1976).

Example:

Cynara cardunculus L. Cardoon. Perennial; scattered;
locally abundant; Cismontane Introduced Grasslands; Rincon
Formation; lower Alegria Canyon; naturalized; May-Jul; 429;
C. Smith, 1976.

ANNOTATED CATALOGUE

DIVISION TRACHEOPHYTA

SUBDIVISION LYCOPSIDA

CLASS LYCOPODIAE

SELAGINELLACEAE Moss-Fern Family

Selaginella bigelovii Underw. Bigelow's Moss-Fern. Perennial; scattered; rocky areas, Oak Woodland, Chaparral; Nov-Aug; C. Smith, 1976.

SUBDIVISION SPENOPSIDA

CLASS EQUISETAE

EQUISETACEAE Horsetail Family

Equisetum hyemale L. var. affine (Engelm.) A.A. Eaton. Giant Scouring Rush. Perennial; scattered; streambed; Alegria, Matilija Formations, Santa Anita Canyon; Feb-Dec; 221.

Equisetum telmateia Ehrh. var. braunii Milde. Giant Horsetail. Perennial; scattered; shaded seeps, streambed; Alegria, Gaviota Formations; 227.

SUBDIVISION PTEROPSIDA

CLASS FILICAE

ASPIDIACEAE

Dryopteris arguta (Kaulf.) Watt. Wood Fern, Shield Fern. Evergreen; abundant; understory of Oak Woodland, N-facing slopes; Alegria, Matilija Formations; 140 197.

Polystichum munitum (Kaulf.) Presl. ssp. munitum. Western Sword Fern. Evergreen; locally common; Cismontane Native Grasslands, Mixed Evergreen Forest; Matilija Formation, rocky N-facing slope, west of Bulito Canyon; Apr-Jun; 198 233; C. Smith, 1976.

BLECHNACEAE

Woodwardia fimbriata Sm. in Rees. Giant Chain Fern. Evergreen perennial; scattered; shaded banks of perennial streams; Vaqueros, Gaviota, Alegria Formations; Mar-Jul; 171.

POLYPODIACEAE

Polypodium californicum Kaulf. var. californicum. California

Polypody. Perennial, summer deciduous; common; N-facing rocky exposures, Coastal Sage Scrub, Chaparral, Oak Woodland; Vaqueros, Gaviota, Alegria Formations; Dec-Jun; 184 487.

PTERIDACEAE

Adiantum capillus-veneris L. Venus Hair Fern. Evergreen perennial; locally abundant; rocky streambanks near waterfalls, seeps; Vaqueros Formation; 220 206.

Adiantum jordanii K. Muell. California Maidenhair Fern. Perennial, summer deciduous; scattered; moist Coastal Sage Scrub; Vaqueros, Gaviota, Alegria, Matilija Formations; 841.

Pellaea andromedifolia (Kaulf.) Fee. Coffee Fern. Scattered; open rocky areas, Coastal Sage Scrub, open Chaparral; Alegria, Matilija Formations; Dec-Aug; 186.

Pityrogramma triangularis (Kaulf.) Maxon var. triangularis. Goldenback Fern. Perennial, summer dormant but not deciduous; common; N-facing slopes, Coastal Sage Scrub, Chaparral, Oak Woodland; Vaqueros, Gaviota, Alegria, Matilija Formations; 147 205 259 817.

Pteridium aquilinum (L.) Kuhn. var. pubescens Underw. Western Bracken Fern. Evergreen perennial; common; N-facing slopes, understory of Oak Woodland; Matilija Formation; Apr-Dec; 141.

CLASS ANGIOSPERMAE

SUBCLASS DICOTYLEDONES

ACERACEAE Maple Family

Acer negundo L. ssp. californicum (T. & G.) Wesm. Box Elder. Deciduous tree; scattered; streambank; Canada del Cojo; Mar-Apr; 682.

AIZOACEAE Carpet Weed Family

Mesembryanthemum crystallinum L. Ice Plant. Annual; uncommon; coastal bluffs; Sisquoc Formation; monospecific patch above seawall, Alegria Beach; naturalized; Mar-Oct; 660.

Tetragonia tetragonoides (Pallas) Kuntze. New Zealand Spinach. Annual; scattered; coastal bluffs; naturalized; Apr-Sep; 104.

ANACARDIACEAE Sumac Family

Rhus laurina Nutt. in T. & G. (Malosma l. Nutt. ex Abrams) Laurel Sumac. Shrub; uncommon; orchard border; W-Alegria on Rancho Real; cultivated; Jun- Jul; 671.

Rhus integrifolia (Nutt.) Benth. & Hook. Lemonade Berry. Shrub; common; Chaparral, N-facing slopes; Vaqueros Formation; Feb-May; 261 649 687.

Schinus molle L. Pepperberry Tree. Tree; scattered; waste areas and nearby hillsides; naturalized, cultivated; 360.

Toxicodendron diversilobum (T. & G.) Greene. Poison Oak. Shrub; abundant; Oak Woodland, Central Coastal Scrub, N-facing slopes; Alegria, Matilija Formations; Mar-May; observed but not collected.

APIACEAE Carrot Family

Apium graveolens L. Celery. Perennial; common; streambeds, Palustrine, Estuarine Wetlands; naturalized; May-Jul; 101 172.

Berula erecta (Huds.) Cov. Perennial; rare; Estuarine Wetlands; Sacate Beach; Jun-Sep; 156.

Bowlesia incana R. & P. Annual; uncommon; understory of Chaparral and Coastal Sage Scrub; Mar-Apr; 759.

Caucalis microcarpa H. & A. Annual; common; understory of moist Sage Scrub, N-facing slopes; Alegria, Anita Formations; Apr-Jun; 920.

Conium maculatum L. Poison Hemlock. Biennial; grasslands; Marine Terrace Deposits, Rincon Formation; naturalized; Apr-Sep; 447.

Daucus pusillus Michx. Rattlesnake Weed, Yerba del Vibora. Annual; scattered; locally abundant; Oak Woodland, Chaparral; Vaqueros, Alegria Formations; Apr-June; 396 468 486.

Foeniculum vulgare Mill. Sweet Fennel, Anise. Perennial; scattered; disturbed habitats, lower elevations, heavy soils; naturalized; May-Sep; 102.

Lomatium utriculatum (Nutt.) Coult. & Rose. Perennial; scattered; Cismontane Native Grasslands; Matilija Formation; Feb-Jun; 873.

Sanicula arguta Greene ex Coult. & Rose. Biennial, perennial; common; open Coastal Sage Scrub; Gaviota, Alegria, Matilija Formations; Mar-Apr; 291 357.

Sanicula crassicaulis Poepp. ex DC. Biennial, perennial; scattered; Chaparral, Oak Woodlands; Alegria, Matilija Formations; Mar-May; 310.

Tauschia arguta (T. & G.) Macbr. Perennial; scattered; shaded rocky terrain; Matilija Formation; Apr-Jun; 469 565 798.

Torilis nodosa (L.) Gaertn. Hedge Parsley. Annual; common; understory of Coastal Sage Scrub, Oak Woodlands; lower elevations; naturalized; Apr-Jun, 437 486.

ASCLEPIADACEAE Milkweed Family

Asclepias fascicularis Dcne. in DC. Narrowleaf Milkweed. Perennial; scattered; Cismontane Introduced Grasslands; Rincon Formation, Marine Terrace Deposits; Jun-Aug; 103; Blakley 7179.

ASTERACEAE Sunflower Family

Achillea millefolium L. var. californica (Pollard) Jeps. White Yarrow. Perennial; common; Oak Woodlands, open Chaparral; Vaqueros, Gaviota, Alegria, Matilija Formations; Mar-Jul; 563 886.

Achyrachaena mollis Schauer. Blow Wives. Annual; common; open Chaparral, Cismontane Native Grasslands; Vaqueros, Gaviota, Alegria Formations; Mar-Apr; 819.

Agoseris apargioides (Less.) Greene. Perennial; rare; Cismontane Native Grasslands, N-facing slopes; heads of Bulito and San Julian Canyons; Mar-Jun; 526.

Agoseris grandiflora (Nutt.) Greene. Perennial; scattered; Cismontane Native Grasslands; Alegria and Matilija Formations, higher elevations; Apr-Jul, 458 544.

Agoseris heterophylla (Nutt.) Greene. Mountain Dandelion. Annual; common; open grasslands; Alegria, Matilija Formations; Apr-Jul; 539 552 616 791 887.

Ambrosia chamissonis (Less.) Greene. var. bipinnatisecta (Less.) J. T. Howell. Beachbur. Perennial; common; stabilized dunes, mouths of Santa Anita, Bulito Canyons; Jul-Nov; 124.

Ambrosia psilostachya DC. var. californica (Rydb.) Blake. Western Ragweed. Perennial; abundant; stabilized dunes, waste areas near coast; Jul-Nov; 105.

Anthemis cotula L. Mayweed. Annual; scattered; locally abundant; Cismontane Introduced Grasslands, disturbed fields; naturalized; Apr-Aug; 602.

Artemisia californica Less. Coastal Sagebrush, Romerillo. Shrub; abundant; Coastal Sage Scrub, S-facing slopes, lower elevations; Sep-Oct; 662.

Artemisia douglasiana Bess. in Hook. Mugwort. Perennial; common; N-facing slopes, shaded areas; Jun-Oct; 111.

Artemisia dracunculus L. Tarragon. Perennial; locally abundant; Chaparral, eastern ridge of Alegria Canyon; Vaqueros, Gaviota Formations; Jun-Nov; 696.

Aster chilensis Nees. Perennial; common; streambanks; Jun-Oct; 113 114.

Baccharis douglasii DC. Perennial; common; Estuarine, Palustrine Wetlands; Jun-Nov; 213; Blakley 7180 7183.

Baccharis glutinosa Pers. Mule Fat, Guatemote, Water Walley. Shrub; scattered; Riverine Wetlands, Palustrine Emergent Wetlands; most of the year; 123.

Baccharis pilularis DC. ssp. consanguinea (DC.) C.B. Wolf. Coyote Brush, Chaparral Broom. Shrub, common, Coastal Sage Scrub; Marine Terrace Deposits; Aug-Dec; 112.

Baccharis plummerae Gray. Shrub; rare; Chaparral, eastern ridge Alegria Canyon; Matilija Formation; Aug-Oct; 828.

Brickellia californica (T. & G.) Gray. Shrub; common; moist, disturbed areas, Oak Woodlands; Jul-Dec; 715.

Carduus pycnocephalus L. Italian Thistle. Annual; scattered; waste areas, road cuts, cattle tracks; naturalized; May-Jul; 412 813.

Centaurea melitensis L. Tocalote. Annual; scattered; waste areas, Cismontane Introduced Grasslands; naturalized; May-Jun; 419.

Chrysopsis villosa (Pursh) Nutt. var. sessiliflora (Nutt.) Gray. (Heterotheca echiioides Shinnars) Perennial; locally scattered; Coastal Sage Scrub; Gaviota Formation, eastern ridge Alegria Canyon; Jun-Oct; 697; C. Smith, 1976.

Cirsium brevistylum Cronquist. Indian Thistle. Biennial; scattered; open woodlands at lower elevations; May-Aug; 647 720.

Cirsium vulgare (Savi.) Tenore. Bull Thistle. Biennial; scattered; disturbed areas, intermittent streambeds; naturalized; Jun-Sep; 115.

Conyza bonariensis (L.) Cronquist. Flax-Leaved Fleabane. Annual; common; roadsides, waste areas; naturalized; Jun-Aug; 709.

Conyza canadensis (L.) Cronquist. Horseweed. Annual; scattered; intermittent streambeds, Palustrine Wetlands, disturbed areas; naturalized; Jun-Sep; 254 459.

Coreopsis gigantea (Kell.) Hall. Giant Coreopsis. Shrub; rare; coastal bluffs, eastern portion of ranch; Mar-May; M. Hochberg, 1976; C. Smith, 1976.

Corethrogyne filaginifolia (H. & A.) Nutt. var. latifolia Hall. Cudweed Aster. Perennial; common; rocky open areas, N-facing slopes; higher elevations; Aug-Dec; 142 179 210 230 879.

Cotula coronopifolia L. Brass Buttons. Perennial; common; Riverine, Palustrine, Estuarine Wetlands; naturalized; Mar-Dec; 106.

Cynara cardunculus L. Cardoon. Perennial; scattered, locally abundant; Rincon Formation; Alegria Canyon; naturalized; May-Jul; 429; C. Smith, 1976.

Encelia californica Nutt. California Encelia, Bush Sunflower. Shrub; common; coastal bluffs; planted along Rancho Real and N-facing slope of Vaqueros Formation; Feb-Jun; 164.

Encelia californica X E. farinosa. Shrub; uncommon, locally

common; spontaneous hybrid; eastern portion of Rancho Real; Mar-May; 811.

Encelia farinosa Gray ex Torr. Brittle Bush, Incienso. Shrub; uncommon, locally common; roadside planting; eastern portion of Rancho Real; Mar-May; 150 812.

Erechtites arguta (A. Rich.) DC. Annual; common; disturbed habitats; higher elevations; Matilija Formation; naturalized; Dec-Apr; 203.

Erigeron sanctarum Wats. Perennial; rare; colonizes disturbed portions of Chaparral; Matilija Formation; May-Jul; 574 794 866.

Eriophyllum confertiflorum (DC.) Gray. Golden Yarrow. Shrub; common; open rocky slopes; Gaviota, Alegria, Matilija Formations; Feb-Jul; 243 407.

Filago californica Nutt. Annual; scattered; Cismontane Native Grasslands; Alegria, Matilija Formations; Mar-Jun; 482 796 833.

Filago gallica L. Annual; scattered; Cismontane Native Grasslands; Alegria, Matilija Formations; naturalized; Apr-Jun; 570 785.

Gnaphalium beneolens Davids. Perennial; scattered; rocky and coarsely-grained sandy locations; Vaqueros, Gaviota, Matilija Formations; Jul-Nov; 579 680 694.

Gnaphalium bicolor Bioletti. Bicolored Cudweed. Biennial, perennial; uncommon; N-facing slopes; Vaqueros, Gaviota Formations; Jan-Jun; 263 832.

Gnaphalium californicum DC. Green Everlasting. Biennial; scattered; Chaparral, Coastal Sage Scrub; Jan-Jul; 553 645.

Gnaphalium chilense Spreng. var. chilense. Annual; scattered; moist Cismontane Native Grasslands, Palustrine Emergent Wetlands; Mar-Oct; 761.

Gnaphalium luteo-album L. Annual; scattered; streambanks, Palustrine Emergent Wetlands; naturalized; most of the year; 181 190 807.

Gnaphalium microcephalum Nutt. var. microcephalum. White Everlasting. Biennial, perennial; scattered; dry, open Coastal Sage Scrub, Chaparral; Vaqueros, Matilija Formations; Jul-Oct; 125.

Gnaphalium palustre Nutt. Woolly Everlasting. Annual; scattered; Palustrine Emergent Wetlands; May-Oct; 189.

Gnaphalium purpureum L. Annual, biennial; scattered; rocky, open locations; Alegria and Matilija Formations; Apr-Jul; 440 537.

Grindelia robusta Nutt. var. robusta. Perennial; common; N-facing

grasslands; Matilija Formation; May-Sep; 247.

Haplopappus ericoides (Less.) H. & A. ssp. blakei C. B. Wolf (Ericameria ericoides (Less.) Jeps. ssp. ericoides). Mock Heather. Shrub; scattered; open Chaparral, primarily occurring near crests of ridge; Vaqueros, Gaviota Formations; Aug-Nov; 178 695; C. Smith, 1976.

Haplopappus squarrosus H. & A. ssp. grindelioides (DC.) Keck (Hazardia squarrosa (H. & A.) Greene ssp. grindelioides (DC.) Clarke). Saw-toothed Goldenbush. Shrub; scattered; open, grassy slopes; Rincon, Alegria, and Matilija Formations; Jul-Oct; 110.

Haplopappus venetus (HBK.) Blake ssp. vernonioides (Nutt.) Hall (Isocoma veneta HBK. ssp. vernonioides (Nutt.) Hall.). Shrub; scattered; open grasslands near coast; Apr-Nov; 108.

Helenium puberulum DC. Sneezeweed, Rosilla. Annual; scattered; streambanks; May-Sep; 109.

Helianthus gracilentus Gray. Perennial; locally abundant; Cismontane Introduced Grasslands; Marine Terrace Deposits; Rancho Real, east of entrance; May-Oct; 688.

Hemizonia fasciculata (DC.) T. & G. Annual; scattered; Monterey, Gaviota, Alegria Formations; Apr-Jul; 654; C. Smith, 1976.

Hemizonia increscens (Hall ex Keck) Tanowitz (Hemizonia paniculata Gray ssp. increscens Hall ex Keck.) Tarweed. Annual; common; open Cismontane Introduced Grasslands, S-facing slopes; Jun-Sep; 107 139 638 730.

Hieracium argutum Nutt. ssp. argutum. Hawkweed. Perennial; scattered; open Mixed Chaparral; S-facing Matilija Formation; Jun-Aug; 915.

Heterotheca grandiflora Nutt. Telegraph Weed. Annual, biennial; common; sandy, disturbed localities, lower portions of canyons; most of the year; 265.

Jaumea carnosa (Less.) Gray. Perennial; locally common; Estuarine Emergent Wetlands; May-Oct; 903.

Hypochoeris glabra L. Smooth Cat's Ear. Annual; common; sandy, disturbed localities; Mar-Jun; 431 538 575 721 738 855.

Lactuca saligna L. Annual; scattered; waste areas, fields; Marine Terrace Deposits; naturalized; Aug-Nov; 723.

Lactuca serriola L. var. serriola. Prickly Lettuce. Annual; scattered; waste areas, road cuts, and fields; naturalized; May-Sep; 676.

Lasthenia chrysostoma (F. & M.) Greene (L. californica DC. ex

Lindley). Goldfields. Annual; common; Cismontane Introduced Grasslands; Marine Terrace Deposits, Alegria, Matilija Formations; Feb-Jun; 365.

Layia platyglossa (F. & M.) Gray ssp. campestris Keck. Tidy Tips. Annual; abundant; Cismontane Introduced Grasslands; Marine Terrace Deposits, Matilija Formation; Mar-May; 305 370 593.

Madia capitata Nutt. Annual; uncommon; disturbed roadsides, Mixed Chaparral, Cismontane Native Grasslands; Matilija Formation; May-Sep; 732.

Madia gracilis (Sm.) Keck. Gum Weed. Annual; common; Cismontane Native Grasslands, open Coastal Sage Scrub; Apr-Jul; 543 618 883.

Malacothrix saxatilis (Nutt.) T. & G. var. saxatilis. Cliff Aster. Shrub; common; Coastal Sage Scrub, road cuts, hillsides near coast; Marine Terrace Deposits, Monterey Formation; 219 390.

Malacothrix saxatilis (Nutt.) T. & G. var. tenuifolia (Nutt.) Gray. Shrub; common; disturbed hillsides, road cuts away from coast; Gaviota, Alegria, Matilija Formations; most of the year; 219 227 390 754.

Matricaria matricarioides (Less.) Porter. Pineapple Weed, Manzanilla. Annual; common; waste areas, intermittent streambeds; naturalized; Mar-Jun; 363.

Micropus californicus F. & M. var. californicus. Annual; scattered; Cismontane Native Grasslands; Matilija Formation; Mar-Jun; 786.

Microseris elegans Greene ex Gray. Annual; uncommon; undisturbed portions, Marine Terrace Deposits; Mar-May; 346.

Microseris linearifolia (DC.) Sch.-Bip. (Microseris lindleyi (DC.) Gray). Annual; scattered; grasslands, open woodlands; Apr-Jun; 369 395 401 892.

Perezia microcephala (DC.) Gray. Sacapellote. Perennial; scattered; open Chaparral; May-Sep; 827.

Picris echioides L. Bristly Ox Tongue. Annual; common; seeps, streambeds, borders of holding ponds; naturalized; Jun-Dec; 152 192.

Psilocarphus tenellus Nutt. Annual; scattered; Palustrine Emergent Wetlands, seeps; Marine Terrace Deposits, N-facing portions of Matilija Formation; Mar-Jun; 548 607.

Rafinesquia californica Nutt. Annual; scattered; Cismontane Introduced Grasslands near the coast; Marine Terrace Deposits; Mar-Jun; 342 467.

Solidago californica Nutt. Golden Rod, Oreja de Liebre. Perennial;

common; Coastal Sage Scrub, streambanks, N-facing slopes; Jul-Oct; 169
693.

Soliva daucifolia Nutt. Annual; uncommon, locally abundant; open
Oak Woodlands; Apr-Jun; 838.

Sonchus asper (L.) Hill. Prickly Sow Thistle. Annual; scattered;
disturbed habitats, Estuarine Emergent Wetlands, road cuts; naturalized;
most of the year; 333 342.

Sonchus oleraceus L. Common Sow Thistle. Annual; abundant;
grasslands, Oak Woodlands; naturalized; most of the year; 159 163
186 610 760 815 816 859.

Stephanomeria virgata Benth. Annual, somewhat woody at base;
scattered; road cuts and fields; Marine Terrace Deposits, Monterey
Formation; Jul-Nov; 131 132.

Venegasia carpesioides DC. Canyon Sunflower. Shrub; common;
streambanks, moist Oak Woodlands; Feb-Sep; 155.

Xanthium spinosum L. Spiny Clotbur, Spanish Thistle. Annual;
common; moist waste areas, Palustrine Emergent Wetlands, roadsides;
naturalized; Jul-Oct; 193.

Xanthium strumarium L. var. canadense (Mill.) T. & G. Cocklebur.
Annual; common; moist waste areas, Palustrine Emergent Wetlands;
Jul-Oct; 187 191.

BORAGINACEAE Borage Family

Amsinckia intermedia F. & M. Fiddleneck. Annual; common; heavy
soils, Cismontane Introduced Grasslands; Marine Terrace Deposits;
Feb-Jun; 356 386.

Amsinckia spectabilis F. & M. Annual; scattered; Cismontane
Introduced Grasslands; Marine Terrace Deposits; Feb-Jun; 382.

Cryptantha intermedia (Gray) Greene var. intermedia. Annual;
common; locally abundant; sandy hillsides, open Chaparral, Oak
Woodlands; Mar-Jul; 394 742 751 762.

Echium fatuosum Jacq. Viper's Bugloss. Shrub; rare; lower portion
of Alegria Canyon; naturalized; May-Jun; 471.

Heliotropium curassavicum L. var. oculatum (Heller) Jtn.
Heliotrope. Perennial; common, locally abundant; seeps, bluffs, road
cuts near the coast; Mar-Oct; 116.

Plagiobothrys californicus (Gray) Greene var. californicus.
Annual; scattered; Cismontane Native Grasslands, Emergent Wetlands;
Marine Terrace Deposits; Mar-Jun; 374.

BRASSICACEAE Mustard Family

Brassica geniculata (Desf.) J. Ball. Perennial; common; heavy soils, waste areas; naturalized; May-Oct; 162 168.

Brassica nigra (L.) Koch. Black Mustard. Annual; common; clay soils; Rincon Formation and Marine Terrace Deposits; naturalized; Apr-Jul; 770 842.

Brassica tournefortii Gouan. Rare; Alegria Formation; Agua Caliente; naturalized; C. Smith, 1976.

Cakile maritima Scop. Sea Rocket. Perennial; scattered; partially stabilized Coastal Strand; naturalized; Jun-Nov; 117.

Capsella bursa-pastoris (L.) Medic. Shepherd's Purse. Annual; scattered; disturbed areas, coastal plain; Marine Terrace Deposits; naturalized; most of the year; 270.

Cardamine californica (Nutt.) Greene. (Dentaria integrifolia Nutt. var. californica (Nutt.) Jeps.). Milk Maids. Perennial; scattered; Oak Woodlands; Feb-Jun; 309.

Erysimum suffrutescens (Abrams) G. Rosseb. var. grandifolium G. Rosseb. Perennial; scattered, locally common; N-facing slope; Vaqueros Formation; Mar-Jul; 175 303.

Lepidium nitidum Nutt. Pepper Grass. Annual; scattered; Cismontane Native Grasslands; Feb-May; 343 359 383 755.

Raphanus raphanistrum L. Jointed Charlock. Annual; common; Cismontane Introduced Grasslands, clay soils; Marine Terrace Deposits, Rincon Formation; hybridizes commonly with the following; naturalized; Apr-Jun; 386.

Raphanus sativus L. Wild Radish. Annual; common; Cismontane Introduced Grasslands; naturalized; Feb-Jul; 384 385.

Rorippa nasturtium-aquaticum (L.) Hayek. Watercress, Berros. Perennial; common; perennial streambeds; naturalized; Mar-Nov; 420.

Sisymbrium irio L. Annual; uncommon; clay soils, open areas near coast; naturalized; May; 340 434.

Sisymbrium officinale (L.) Scop. Hedge Mustard. Annual; abundant; clay soils, open areas; Marine Terrace Deposits, Rincon Formation; naturalized; May-Jul; 391 448 559 769 854.

CAPRIFOLIACEAE Honeysuckle Family

Lonicera hispidula Dougl. var. vacillans Gray. California Honeysuckle. Shrub; scattered; Mixed Chaparral; Matilija Formation at higher elevations; Apr-Jul; 567 681.

Sambucus mexicana Presl. Elderberry. Arborescent shrub; common; canyon bottoms; Vaqueros, Gaviota, Alegria Formations; Mar-Sep; 668.

Symphoricarpos mollis Nutt. in T. & G. Snowberry. Shrub; scattered; underbrush of Oak Woodlands; Apr-Jun; 454.

CARYOPHYLLACEAE Pink Family

Silene gallica L. Windmill Pink. Annual; common; disturbed areas, road cuts; naturalized; Feb-Jun; 319.

Silene laciniata Cav. ssp. major Hitchc. & Maguire var. angustifolia Hitchc. & Maguire. Indian Pink. Perennial; scattered; open, N-facing rocky slopes; Vaqueros Formation; Mar-Dec; 283 398.

Spergula arvensis L. Corn Spurrey. Annual; common; waste areas, fields, Oak Woodlands; naturalized; most of the year; 375 582 634.

Spergularia marina (L.) Griseb. Annual; scattered; Palustrine Emergent Wetlands, Coastal Bluff Scrub; Mar-Sep; 376.

Spergularia rubra (L.) J. & C. Presl. Annual, short-lived perennial; uncommon; open disturbed areas, higher elevations; Alegria, Matilija Formations; naturalized; 795.

Stellaria media (L.) Vill. Chickweed. Annual; common; Oak Woodlands, shaded grasslands; naturalized; Feb-Sep; 267.

CHENOPODIACEAE Goosefoot Family

Atriplex lentiformis (Torr.) Wats. ssp. brewerii (Wats.) Hall & Clem. Salt Brush. Shrub; common; road cuts, banks; cultivated; Aug-Oct; 215 216.

Atriplex leucophylla (Moq.) D. Dietr. Perennial; locally common; Coastal Strand; Aug-Oct; 133 151 160.

Atriplex patula L. ssp. hastata (L.) Hall & Clem. Annual; scattered; Estuarine Emergent Wetlands, Coastal Strand; Jun-Nov; 135 136 158 159, Blakley 7182.

Atriplex semibaccata R. Br. Australian Saltbrush. Perennial; scattered; dry habitats on the Coastal Bluff Scrub, Cismontane Introduced Grasslands; naturalized; Apr-Dec; 157.

Chenopodium ambrosioides L. Mexican Tea. Annual, perennial; uncommon; Cismontane Introduced Grasslands; Marine Terrace Deposits, Rincon Formation; naturalized; Jun-Oct; 692.

Chenopodium californicum (Wats.) Wats. Soap Plant. Perennial; common; Cismontane Native Grasslands, Coastal Bluff Scrub; Mar-May; 275

Chenopodium macrospermum Hook. f. var. farinosum (Wats.) J. T. Howell. Annual; uncommon; Coastal Strand, Estuarine Emergent Wetlands;

Jul-Nov; 137.

Chenopodium murale L. Nettle Leaf Goosefoot. Annual; common; disturbed localities near the coast; naturalized; most of the year; 341.

Suaeda californica Wats. var. pubescens Jeps. Seashore Blite. Shrub; rare; Coastal Bluff Scrub; May-Oct; 217.

CISTACEAE Rock Rose Family

Cistus villosus L. var. corsicus (Lois.) Gross. Rock Rose. Shrub; uncommon; introduced along portions of Rancho Real; 323.

Helianthemum scoparium Nutt. var. scoparium. Perennial; common; disturbed open portions of Mixed Chaparral; Matilija Formation; Mar-Jun; 202 586 633; Smith, 1976.

CONVOLVULACEAE Morning-Glory Family

Calystegia macrostegia (Greene) Brummitt ssp. macrostegia. Morning-Glory. Perennial; rare; Cismontane Native Grasslands; Marine Terrace Deposits; Mar-Aug; 355.

Calystegia macrostegia (Greene) Brummitt ssp. cyclostegia (House) Brummitt. Morning-Glory. Perennial; common throughout the ranch; Mar-Aug; 214 241 293 729.

CRASSULACEAE Stonecrop Family

Crassula erecta (H. & A.) Berger. Annual; common; moist, shaded locations; Mar-May; 547.

Dudleya lanceolata (Nutt.) Britt. & Rose. Rock Lettuce. Perennial, succulent; common; understory of Chaparral, Coastal Sage Scrub; Vaqueros, Alegria, Matilija Formations; May-Jul; 658 659.

CORNACEAE Dogwood Family

Cornus stolonifera Michx. var. californica (C.A. Mey) H.E. McMin. Creek Dogwood. Shrub; scattered; streambanks; Vaqueros, Alegria Formations; Bulito, Cojo Canyons; Mar-Jun; 403 611; C. Smith, 1976.

CUCURBITACEAE Gourd Family

Marah fabaceus (Naud.) Greene var. agrestis (Greene) Stocking. Perennial; scattered; Coastal Sage Scrub, Chaparral, Oak Woodland; Feb-Apr; 287 312.

ERICACEAE Heath Family

Arbutus menziesii Pursh. Madrone. Tree; scattered; N-facing slopes, Mixed Evergreen Forest; Matilija and Alegria Formation, higher elevations; Mar-May; 222; Smith, 1976.

Arctostaphylos glandulosa Eastw. var. zacaensis (Eastw.) Adams ex McMinn. Eastwood Manzanita. Shrub; uncommon; Mixed Chaparral; Matilija Formation; Feb-Jun; 725 726.

Arctostaphylos purissima P.V. Wells. Shrub; common; higher elevations; Matilija Formation; Nov-May; 145 201 231 235 239 536 753; C. Smith, 1976.

Comarostaphylis diversifolia (Parry) Greene var. planifolia Jeps. Summer Holly. Shrub; common; Mixed Evergreen Forest, N-facing slopes, higher elevations; Matilija Formation; Jan-May; 558 888; C. Smith, 1976.

Gaultheria shallon Pursh. Salal. Shrub; uncommon; Mixed Evergreen Forest, N-facing slopes; Matilija Formation; west of San Augustine Canyon; May-Jun; 588 727; C. Smith, 1976.

Vaccinium ovatum Pursh. California Huckleberry. Shrub; common; N-facing slopes, higher elevations; Matilija Formation; Jan-Jun; 580; C. Smith, 1976.

EUPHORBIACEAE Spurge Family

Eremocarpus setigeris (Hook.) Benth. Doveweed, Turkey Mullein. Annual; scattered; waste areas, pastures, cultivated areas; Rincon Formation, Marine Terrace Deposits; Mar-Sep; 134.

Euphorbia peplus L. Petty Spurge. Annual; common; waste and shaded areas; naturalized; Feb-Aug; 314.

Euphorbia supina Raf. Annual; scattered; waste areas; naturalized; May-Oct; 664.

FABACEAE Pea Family

Astragalus trichopodus (Nutt.) Gray ssp. antsellii (Gray) Thorne. Perennial; scattered; locally abundant; open, rocky S-facing areas; Vaqueros Formation; Feb-Aug; 208 763.

Cassia tomentosa L. f. Shrub; rare; Cismontane Introduced Grasslands; Sisquoc Formation; Santa Anita Canyon by the railroad tracks; naturalized; 212.

Lathyrus laetiflorus Greene ssp. barbarae (White) C.L. Hitchc. Wild Sweetpea. Perennial; common; moist, shaded areas; Apr-Jun; 731 747 788 801 843 882.

Lotus grandiflorus (Benth.) Greene ssp. grandiflorus. Chaparral Lotus. Sub-shrub; scattered; open or disturbed areas, Mixed Chaparral; Matilija Formation; Apr-Jul; 237.

Lotus humistratus Greene. Annual; rare; moist areas, Cismontane Native Grasslands; Marine Terrace Deposits; Mar-Jun; 372.

Lotus junceus (Benth.) Greene. Shrub; common; Coastal Sage Scrub,

open Chaparral; Mar-Aug; 408.

Lotus salsuginosus Greene. ssp. salsuginosus. Annual; common; disturbed areas, Cismontane Introduced Grasslands; Mar-Jun; 595 737.

Lotus strigosus (Nutt. ex T. & G.) Greene. Bishop's Lotus. Annual; common; grasslands, disturbed areas; Mar-Jun; 568 573.

Lupinus bicolor Lindl. ssp. bicolor. Annual; scattered; grasslands; Marine Terrace Deposits; Mar-May; 349.

Lupinus bicolor Lindl. ssp. microphyllus Wats. Annual; common; grasslands, open areas, Mixed Chaparral; Matilija Formation; Mar-Jun; 541 799 856.

Lupinus bicolor Lindl. ssp. umbellatus (Greene) D. Dunn. Annual; scattered; grasslands; Marine Terrace Deposits; Mar-May; 320.

Lupinus densiflorus Benth. var. palustris (Kell.) C. P. Smith. Annual; scattered; locally abundant; Cismontane Native Grasslands; Anita Formation; Apr-Jun; 615 874.

Lupinus hirsutissimus Benth. Nettle Lupine. Annual; scattered; grasslands, open woodlands, Mixed Chaparral; Feb-May; 364 743.

Lupinus latifolius J. G. Agardh. var. latifolius. Canyon Lupine. Perennial; uncommon; Mixed Chaparral; Matilija Formation; San Augustine and Honda Canyons; Apr-Jul; C. Smith, 1976.

Lupinus nanus Dougl. in Benth. var. nanus. Sky Lupine. Annual; common; Cismontane Native Grasslands; Alegria, Matilija Formations; Apr-May; 750.

Lupinus succulentus Dougl. ex Keck. Succulent Lupine. Annual; scattered; disturbed areas; Marine Terrace Deposits; Feb-May; 295 545 596.

Lupinus truncatus Nutt. Annual; scattered; road cuts; disturbed areas, grasslands, Coastal Sage Scrub; Monterey Formation; Mar-Jun; 397 410.

Medicago polymorpha L. var. polymorpha. Bur Clover. Annual; common; Cismontane Introduced Grasslands, waste areas; naturalized; Mar-Jun; 297.

Medicago sativa L. Alfalfa. Perennial; scattered; roadsides, pastures, fields; Marine Terrace Deposits, Rincon Formation; naturalized; Apr-Oct; 669.

Melilotus albus Desr. White Sweet Clover. Annual; scattered; waste areas, Cismontane Introduced Grasslands, streambeds; naturalized; May-Sep; 328.

Melilotus indicus (L.) All. Annual; common; waste areas, Cismontane

Introduced Grasslands, intermittent streambeds; naturalized; May-Aug; 196 256.

Pickeringia montana Nutt. Chaparral Pea. Shrub; common; disturbed areas, Mixed Chaparral; Matilija Formation; May-Aug; 535.

Psoralea macrostachya DC. Leather Root. Perennial; uncommon; intermittent streambed; Alegria Formation; Bulito Canyon; May-Oct; 714.

Trifolium amplexans T. & G. var. amplexans. Bladder Clover. Annual; common; moist areas, Cismontane Native Grasslands; Marine Terrace Deposits, Alegria, Matilija Formations; Mar-Apr; 367.

Trifolium barbigerum Torr. Annual; uncommon; Cismontane Introduced Grasslands; Rincon Formation; Mar-May; 657.

Trifolium ciliolatum Benth. Tree Clover. Annual; scattered; Oak Savannah; Alegria, Matilija Formations; Mar-Jun; 445.

Trifolium fulcatum Lindl. var. fulcatum. Bull Clover. Annual; scattered; clay soils; Cojo, Cemetary, Honda Canyons; Mar-May; 594; C. Smith, 1976.

Trifolium gracilentum T. & G. Pinpoint Clover. Annual; common; Cismontane Native Grasslands; Alegria, Matilija Formations; Apr-Jun; 788 821.

Trifolium tridentatum Lindl. var. tridentatum. Tomcat Clover. Annual; common; disturbed areas, Oak Savannah, grasslands; Mar-Jun; 377 551.

Vicia americana Muhl. ex Willd. American Vetch. Perennial; common; moist, open streambanks, Cismontane Introduced Grasslands; Marine Terrace Deposits, Alegria, Rincon Formations; Apr-Jun; 473 549 851 913.

Vicia benghalensis L. Purple Vetch. Annual; common; moist open streambanks, Cismontane Introduced Grasslands; Marine Terrace Deposits, Rincon Formation; naturalized; May-Jun; 463 891.

Vicia dasycarpa Ten. Smooth Vetch. Annual; scattered; open streambanks; naturalized; 306.

Vicia gigantea Hook. Perennial; Bulito Canyon (southern limit); C. Smith, 1976.

Vicia sativa L. Common Vetch. Annual; common; moist roadsides, open streambanks; naturalized; Apr-Jul; 858 890.

FAGACEAE Oak Family

Lithocarpus densiflorus (H. & A.) Rehd. Tanbark Oak. Tree; scattered, locally common; dense stands, Mixed Evergreen Forest, N-facing slopes, higher elevations; Matilija Formation, Jun-Oct; 107 242.

Quercus agrifolia Nee. var. agrifolia. Coast Live Oak. Tree; abundant; canyons, N-facing slopes; Mar-Apr; 825.

Quercus parvula Greene var. parvula. Tree; common; Mixed Chaparral, ridgecrest; Matilija Formation; 240 564 581 679 (Fig. 20).

GARRYACEAE Silk Tassel Family

Garrya elliptica Dougl. Shrub; scattered; N-facing slope, Mixed Evergreen Forest, higher elevations; Matilija Formation; far west end of Ranch; Jan-Mar; 232.

GERANIACEAE Geranium Family

Erodium botrys (Cav.) Bertol. Broadleaf Filaree. Annual; common; moist sandy grasslands; Marine Terrace Deposits, Matilija Formation; naturalized; Mar-May; 629.

Erodium cicutarium (L.) L'Her. Redstem Filaree. Annual; abundant; Cismontane Introduced Grasslands, waste areas; naturalized; Feb-May; 327 339 371 393.

Erodium moschatum (L.) L'Her. Whitestem Filaree. Annual; scattered; Cismontane Introduced Grasslands, waste areas; naturalized; Feb-May; 378.

Geranium carolinianum L. Carolina Geranium. Annual; scattered; moist hillsides, Oak Woodland, Cismontane Native Grasslands; Apr-Jun; 839.

Geranium dissectum L. Cutleaf Geranium. Annual; common; moist N-facing slopes, intermittent streambeds, Estuarine Emergent Wetlands; naturalized; Mar-May; 336 426 439 555 630 749.

HYDROPHYLLACEAE Waterleaf Family

Eriodictyon capitatum Eastw. Lompoc Yerba Santa. Shrub; scattered; locally common; disturbed and open portions of Mixed and Chamise Chaparral communities, higher elevations; Matilija Formation; May-Jun; 566; Smith, 1976 (Fig. 19).

Eucrypta chrysanthemifolia (Benth.) Greene var. chrysanthemifolia. Annual; common; shaded portions of Coastal Sage Scrub, Mixed Chaparral, Oak Woodland; Vaqueros, Alegria, Matilija Formations; Mar-Jun; 278 400 474.

Phacelia cicutaria Greene var. hubbyi (Macbr.) J.T. Howell. Annual; scattered; disturbed hillsides, Chaparral; Monterey Formation, Marine Terrace Deposits; Apr-Jun; 736.

Phacelia distans Benth. Wild Heliotrope. Annual; scattered; dry, open, rocky hillsides, Cismontane Native Grasslands; Monterey, Vaqueros, Gaviota, Alegria Formations; Mar-Jun; 298 736 764.

Phacelia imbricata Greene ssp. imbricata. Rock Phacelia.
Perennial; scattered, locally common; rocky, open Cismontane Native
Grasslands; Vaqueros, Gaviota Formations; E-ridge Alegria Canyon;
Apr-Jun; 472 834.

Phacelia ramosissima Dougl. ex Lehm. var. austrolitoralis Munz.
Perennial; common; exposed, rocky slopes; Vaqueros, Gaviota, Alegria,
Matilija Formations; May-Aug; 476 632.

LAMIACEAE Mint Family

Lepechinia calycina (Benth) Epling. Pitcher Sage. Shrub;
scattered; understory of Mixed Chaparral; Matilija Formation; Mar-Jun;
560.

Marrubium vulgare L. Horehound. Perennial; common; waste areas;
Marine Terrace Deposits; naturalized; Mar-Sep; 765.

Salvia columbariae Benth. Chia. Annual; scattered; open shale
deposits, Coastal Bluff Scrub, Cismontane Native Grasslands; Mar-Jun;
326.

Salvia leucophylla Greene. Purple Sage. Shrub; common; Coastal
Sage Scrub; Monterey Formation; west of San Augustine Canyon; Jan-Jul;
601

Salvia mellifera Greene. Black Sage. Shrub; abundant; Coastal Sage
Scrub; S-facing slopes; Jan-Jul; 284.

Salvia spathacea Greene. Hummingbird Sage, Pitcher Sage. Perennial;
common; sandy soils, Oak Woodlands, Mixed Evergreen Forest; Mar-May;
223.

Satureja douglasii (Benth.) Brig. Yerba Buena. Perennial;
uncommon; N-facing slopes, Mixed Chaparral; Matilija Formation; Mar-Apr;
728; C. Smith, 1976.

Stachys bullata Benth. Wood Mint. Perennial; common; Oak
Woodlands, moist Cismontane Native Grasslands, Coastal Sage Scrub, Mixed
Evergreen Forest; Apr-Sep; 313 790 870.

MALVACEAE Mallow Family

Malva nicaeensis All. Bull Mallow. Annual; common; waste areas;
Marine Terrace Deposits; naturalized; Mar-Sep; 422 425 775.

Malva parviflora L. Cheeseweed. Annual; scattered; moist disturbed
localities, Palustrine Emergent Wetlands; naturalized; most of the year;
332.

Sidalcea malvaeflora (DC.) Gray ex Benth. ssp. malvaeflora.
Perennial. Cojo and Honda Canyon heads; C. Smith, 1976.

Sidalcea malvaeflora (DC.) Gray ex Benth. ssp. laciniata C.L.

Hitchc. Checker Bloom. Perennial; scattered; Cismontane Native Grasslands; Matilija Formation; May-Aug; 546.

MYRICACEAE Wax Myrtle Family

Myrica californica Cham. & Schecht. Pacific Wax Myrtle. Shrub; scattered; streambank; Alegria and Matilija Formations; Bulito, Cojo Canyons; Apr-Jun; 229; C. Smith, 1976.

MYOPORACEAE Myoporum Family

Myoporum laetum Forst. f. Shrub; rare; Estuarine Emergent Wetlands; naturalized; 329.

NYCTAGINACEAE Four O'Clock Family

Abronia maritima Nutt. ex Wats. Sticky Sand Verbena. Perennial; uncommon; Coastal Strand; Mar-Oct; 167.

Mirabilis californica Gray. Wishbone Bush. Subshrub; common; open Coastal Sage Scrub, Coastal Bluff Scrub, rock outcrops; Monterey, Vaqueros Formations; Jan-Jul; 325.

ONAGRACEAE Evening Primrose Family

Camissonia micrantha (Hornem. ex Spreng.) Raven. Annual; scattered; Mixed Chaparral; Vaqueros Formation; Mar-May; 568 745.

Clarkia deflexa (Jeps.) Lewis & Lewis. Annual; scattered, locally common; disturbed slopes, Cismontane Native Grasslands; May-Jul; 824 861.

Clarkia purpurea (Curt.) Nels. & Macbr. ssp. purpurea. Annual; scattered; moist open areas, open Oak Woodland, Cismontane Native Grasslands; Apr-Jul; 631 840.

Clarkia unguiculata Lindl. Clarkia. Annual; scattered; open Chaparral, Oak Savannah; Vaqueros, Alegria, Matilija Formations; May-Jun; 648.

Epilobium adenocaulon Hausslen var. parishii (Trel.) Munz. Perennial; uncommon; shaded streambeds; Vaqueros, Alegria Formations; Jul-Sep; 149.

Zauschneria californica Presl. ssp. californica. California Fuschia. Subshrub; common; Coastal Sage Scrub, streambanks, rocky N-facing slopes; Aug-Oct; 118 144 149 684.

OROBANCHACEAE Broom-Rape Family

Orobanche bulbosa (Gray) G. Beck. Annual root parasite; uncommon; Coastal Sage Scrub, Mixed Chaparral; Vaqueros Formation; May-Jul; 656 835.

OXALIDACEAE Oxalis or Wood Sorrel Family

Oxalis albicans Kunth ssp. californica (Abrams) Eiten. Perennial; scattered; Oak Woodland; Alegria, Matilija Formations; Feb-Aug; 290 432 613.

PAEONIACEAE Peony Family

Paeonia californica Nutt. ex T. & G. California Peony. Perennial; rare; open Chaparral, Cismontane Native Grasslands; Vaqueros, Alegria, Matilija Formations; Jan-Mar; 279.

PAPAVERACEAE Poppy Family

Dendromecon rigida Benth. ssp. rigida. Shrub; scattered; Mixed Chaparral, S-facing slopes, higher elevations; Matilija Formation; Feb-Jul; 604.

Eschscholzia californica Cham. var. californica. California Poppy, Cope de Oro, Amopola. Annual; common; roadside planting, Rancho Real; scattered; Cismontane Native Grasslands; Sisquoc, Monterey, Alegria Formations; Mar-Sep; 358 757.

Platystemon californicus Benth. var. californicus. Annual; rare; Cismontane Native Grasslands; Alegria, Matilija Formations; Alegria Canyon; Feb-Jun; 758.

PLANTAGINACEAE Plantain Family

Plantago erecta Morris ssp. erecta. Annual; abundant; Cismontane Native Grasslands; Marine Terrace Deposits, Alegria, Matilija Formations; Mar-Jun; 344 366 555 820.

Plantago lanceolata L. English Plantain, Ribgrass. Perennial; scattered; disturbed grasslands; naturalized; Apr-Aug; 766.

Plantago major L. Common Plantain. Perennial; common; streambeds, open Palustrine Emergent Wetlands; naturalized; Apr-Sep; 138 451 748.

PLATANACEAE Sycamore Family

Platanus racemosa Nutt. Western Sycamore, Aliso. Tree; common; Forested Palustrine; Rincon, Alegria Formations; Feb-Aug; 460.

POLEMONIACEAE Phlox Family

Allophyllum glutinosum (Benth.) A. & V. Grant. Annual; scattered; N-facing slopes, Cismontane Native Grasslands, Central Coastal Scrub; Matilija Formation; Apr-Jun; 590.

Gilia achilleaefolia Benth. ssp. achilleaefolia. Annual; scattered; rocky open grasslands, Oak Savannah; Vaqueros, Alegria, Matilija Formations; May-Jun; 853.

Gilia capitata Sims. ssp. abrotanifolia (Nutt. ex Greene) V. Grant. Annual; uncommon; open, rocky Coastal Sage Scrub; Vaqueros Formation; Apr-May; 831.

Leptodactylon californicum H. & A. ssp. californicum. Shrub; common; open rock faces, Mixed Chaparral; Vaqueros, Alegria, Matilija Formations; Mar-Jun; 176.

Linanthus androsaceus (Benth.) Greene ssp. micranthus (Steud.) Manson. Annual; uncommon; Cismontane Native Grasslands, Chaparral, Central Sage Scrub; Matilija Formation; Apr-May; 787.

Navarretia atractyloides (Benth.) H. & A. Annual; uncommon; disturbed Mixed Chaparral; Matilija Formation; May-Jul; 572.

POLYGONACEAE Buckwheat Family

Chorizanthe diffusa Benth. var. nivea (Curran) Hoover. Annual; rare; Mixed Chaparral; Matilija Formation, above Cojo Canyon; Apr-Jul; Smith, 1976.

Eriogonum cinereum Benth. Ashyleaf Buckwheat. Shrub; common; disturbed roadsides, roadside plantings, Rancho Real; Marine Terrace Deposits; Jun-Dec; 165.

Eriogonum elongatum Benth. Shrub; scattered; dry, open rocky areas; Vaqueros, Alegria, Matilija Formations; Jan-Mar; 129.

Eriogonum fasciculatum Benth. var. fasciculatum. California Buckwheat. Shrub; common; Coastal Sage Scrub, higher elevations, S-facing slopes; Apr-Oct; 653.

Eriogonum fasciculatum Benth. var. foliolosum (Nutt.) Stokes. California Buckwheat. Shrub; common; Coastal Sage Scrub, near coast; Sisquoc, Monterey Formations; Apr-Oct; 166.

Eriogonum giganteum Wats. St. Catherine's Lace. Shrub; common; roadside planting, Rancho Real; Marine Terrace Deposits; naturalized; May-Aug; 128.

Eriogonum parvifolium Smith in Rees var. parvifolium. Seacliff Buckwheat. Shrub; common; Coastal Bluff Scrub, Coastal Sage Scrub; May-Oct; 143 148.

Polygonum aviculare L. Common Knotweed. Annual; scattered; streambanks, Rincon Formation; naturalized; May-Nov; 722.

Pterostegia drymaryoides F. & M. Fairy Mist. Annual; common; understory of Coastal Sage Scrub; Mar-Jul; 338 466.

Rumex conglomeratus Murr. Green Dock. Perennial; uncommon; streambanks, Palustrine Emergent Wetlands; naturalized; Apr-Oct; 710.

Rumex crispus L. Curly Dock. Perennial; common; Palustrine and

Estuarine Emergent Wetlands; Rincon Formation; naturalized; most of the year; 334 462.

Rumex fueginus Phil. (R. maritimus L. var. fueginus (Phil.) Dusen). Golden Dock. Annual, biennial; scattered; locally abundant; Estuarine Emergent Wetlands, Coastal Strand; May-Sep; 137.

Rumex pulcher L. Fiddle Dock. Perennial; common; moist grasslands, waste areas; naturalized; 266 646.

Rumex salicifolius Weinm. Willow Dock. Perennial; scattered; Estuarine Emergent Wetlands; May-Dec; 423.

PORTULACACEAE Purslane Family

Calandrinia ciliata (R. & P.) DC. var. menziesii (Hook) Macbr. Red Maids. Annual; scattered; Emergent Wetlands, moist grasslands; Marine Terrace Deposits, Matilija Formation; Feb-May; 352.

Claytonia perfoliata Donn. Miners Lettuce. Annual; common; N-facing slopes, moist Oak Woodlands; Feb-May; 289.

PRIMULACEAE Primrose Family

Anagallis arvensis L. Pimpernel. Annual; common; cool moist shaded regions; naturalized; Mar-Jul; 430.

Dodecatheon clevelandii Greene ssp. sanctarum (Greene) Abrams. Perennial; scattered, locally abundant; open portions of Coastal Sage Scrub; Matilija Formation; Feb-Apr; 752.

RANUNCULACEAE Crowfoot Family or Buttercup Family

Clematis ligusticifolia Nutt. in T. & G. Creek Clematis, Yerba de Chivato. Perennial vine; scattered; streambanks; Vaqueros, Matilija Formations; Jun-Sep; 404 673 711.

Delphinium parryi Gray ssp. parryi. Perennial; rare; Cismontane Native Grasslands, N-facing slopes; Matilija Formation; May-Jun; 881.

Ranunculus californicus Benth. var. californicus. California Buttercup. Perennial; common; N-facing slopes, Oak Woodland, Cismontane Native Grasslands; Matilija Formation; Feb-May; 308 869.

Thalictrum polycarpum (Torr.) Wats. Meadow Rue. Perennial; uncommon; Oak Woodland; Alegria Formation; Alegria Canyon; Mar-Jun; 450.

RHAMNACEAE Buckthorn Family

Ceanothus cuneatus (Hook.) Nutt. Buck Brush. Shrub; abundant; Mixed Chaparral, Chaparral; Vaqueros, Alegria, Matilija Formation, West of Bulito Canyon; Jan-May; 234 237 541; Smith, 1976.

Ceanothus megacarpus Nutt. ssp. megacarpus. Bigpod Ceanothus.

Shrub; abundant; Chaparral; Alegria, Matilija Formations; East of Bulito; Jan-Apr; 177 262 471.

Ceanothus papillosus T. & G. ssp. papillosus. Shrub; locally common; Mixed Chaparral, Matilija Formation, west of Bulito Canyon along the crest; Feb-Jun; 583; Smith, 1976.

Ceanothus spinosus Nutt. in T. & G. Red Heart, Green Bark. Shrub; abundant; Mixed Chaparral, Chaparral; Alegria, Matilija Formations; Feb-Jun; 264.

Ceanothus thyrsiflorus Esch. Blue Blossom. Shrub; scattered; Mixed Chaparral; Matilija Formation; west of San Augustine Canyon along the crest; Feb-Jun; 591; Smith, 1976.

Rhamnus californica Esch. ssp. californica Coffeeberry. Shrub; common; Oak Woodland, Mixed Chaparral; Alegria, Matilija Formations; May-Jul; 917.

Rhamnus crocea Nutt. in T. & G. Redberry. Shrub; common; Chaparral; Vaqueros, Alegria, Matilija Formations; 277 733.

ROSACEAE Rose Family

Adenostoma fasciculatum H. & A. Chamise, Greasewood. Shrub; abundant; Chamise Chaparral; S-facing portions of Matilija Formation; May-Jun; 470.

Cerocarpus betuloides Nutt. ex T. & G. Western Mountain Mahogany, Hardtack. Shrub; scattered; Chaparral; Alegria Formation; Mar-May; 826.

Fragaria vesca L. ssp. californica (C. & S.) Staudt. Wild Strawberry. Perennial; common; Cismontane Native Grasslands; N-facing Anita Formation; Mar-Jun; 248; Smith, 1976.

Heteromeles arbutifolia (Ait.) M. Roem. Toyon, Christmas Berry. Shrub; common; Oak Woodland, Coastal Sage Scrub, Mixed Evergreen Forest; Monterey, Vaqueros, Alegria, Matilija Formations; Jun-Nov; 185.

Potentilla glandulosa Lindl. ssp. glandulosa. Perennial; scattered; Cismontane Native Grasslands; N-facing portions of Anita Formation; May-Jul; 557.

Prunus ilicifolia (Nutt.) Welp. Holly Leaf Cherry, Islay. Shrub; scattered; Coastal Sage Scrub; Monterey Formation; Feb-Jun; 270 411.

Rosa californica C. & S. California Wild Rose. Shrub; scattered; colonies in Coastal Sage Scrub; Marine Terrace Deposits, Alegria Formation; Bulito, Sacate Canyons; May-Aug; 642.

Rubus ursinus Cham. & Schlecht. Wild Blackberry. Perennial vine; abundant; Oak Woodland, Alegria Formation, N-facing slopes; Feb-May; 268.

RUBIACEAE Madder Family

Galium angustifolium Nutt. ssp. angustifolium. Subshrub; common; Chaparral, open Oak Woodlands; Vaqueros, Alegria Formations; Mar-Jun; 436 444 650 830.

Galium aparine L. Bedstraw, Cleavers. Annual; common; Oak Woodland; Alegria Formation; naturalized; Mar-Jul; 449.

Galium nuttallii Gray ssp. nuttallii. Subshrub; common; rocky, open Coastal Sage Scrub, Chaparral, Oak Woodlands; Mar-Jun; 272 484 589 652 830.

Galium porigens Demp. (G. nuttallii Gray ssp. ovalifolium (Demp.) Demp. & Steb.). Subshrub; scattered; open rocky habitats; Mar-Jun; 589 612.

SALICACEAE Willow Family

Populus trichocarpa T. & G. Black Cottonwood. Tree; common; Palustrine Forested Wetlands; Vaqueros, Alegria Formations; Mar-Apr; 459 675.

Salix exigua Nutt. Narrow Leaf Willow. Shrub; uncommon; Palustrine Emergent Wetlands; lower portion of Agua Caliente Canyon; Mar-Jul; 739.

Salix laevigata Bebb. var. laevigata. Red Willow. Tree; common; streambanks, Palustrine Forested Wetlands; throughout the Ranch; Feb-May; 453 702 712.

Salix laevigata Bebb. var. araquipa (Jeps.) Ball. Tree; scattered; streambanks, Palustrine Forested Wetlands; Feb-May; 719.

Salix lasiolepis Benth. var. lasiolepis. Arroyo Willow. Shrub or tree; abundant; Palustrine Scrub-shrub and Forested Wetlands; throughout the ranch; Feb-May; 271 453 698.

SAXIFRAGACEAE Saxifrage Family

Ribes malvaceum Sm. var. malvaceum. Shrub; common; streambanks, Oak Woodland; Alegria, Matilija Formations; Nov-Mar; 146 245 901.

Ribes sanguineum Pursh. var. glutinosum (Benth.) Loud. Pink Flowering Currant. Shrub; scattered; Mixed Chaparral, moist Oak Woodlands; Alegria, Matilija Formations; Santa Anita Canyon west to Cojo Canyon; Mar-Jun; 307; C. Smith, 1976.

SCROPHULARIACEAE Figwort Family

Antirrhinum multiflorum Penn. Sticky Snapdragon. Annual, Perennial; scattered; Chaparral, Vaqueros, Alegria, Matilija Formations; Apr-Jul; 592.

Antirrhinum nuttallianum Benth. Annual; rare; Coastal Sage Scrub;

Apr-Jun.

Castilleja affinis H. & A. var. affinis. Indian Paintbrush. Perennial; common; moist slopes of Coastal Sage Scrub; Alegria, Matilija Formations; Mar-May; 277 402 651 800 803 809 810 875 876 877 878.

Castilleja foliolosa H. & A. Woolly Paintbrush. Subshrub; common; Chamise Chaparral; Coastal Sage Scrub, open, rocky exposures; Vaqueros, Alegria, Matilija Formations; red and yellow flowered forms; Feb-Jul; 260 280 641 806.

Collinsia heterophylla Buist. ex Grah. Chinese Houses, Innocence. Annual; scattered; Oak Savannah, Cismontane Native Grasslands; Vaqueros, Alegria, Matilija Formations; Mar-Jun; 438 550.

Cordylanthus littoralis (Ferris) Macbr. ssp. platycephalus (Penn.) Munz. Annual; rare; Coastal Sage Scrub, open, rocky exposures; Alegria Formation; Sacate Canyon; Jul-Oct; 685.

Keckiellia cordifolia (Benth.) Straw. Climbing Penstemon, Honeysuckle Penstemon. Shrub; scattered; Chaparral, streambanks, Monterey, Alegria, Matilija Formations; Feb-Aug; 600.

Mimulus aurantiacus Curt. ssp. lompocensis (McMinn) Munz. (Diplacus lompocensis McMinn). Shrub; uncommon; Adenostoma Chaparral, Cismontane Native Grasslands; crest and N-facing portions of Matilija Formation; Apr-Jul; 246 435 635.

Mimulus cardinalis Dougl. ex. Benth. Scarlet Monkey Flower. Perennial; uncommon; shaded streambeds of perennial streams; Vaqueros, Alegria, Matilija Formations; Apr-Oct; 672.

Orthocarpus densiflorus Benth. var. densiflorus. Owl's Clover. Annual; scattered, locally common; colonies in Cismontane Native Grasslands; Vaqueros, Alegria, Matilija Formations; E-ridge top of Alegria Canyon; Feb-May; 756 823 836.

Orthocarpus purpurascens Benth. var. purpurascens. Owl's Clover, Escobita. Annual; common; Cismontane Native Grasslands; Marine Terrace Deposits, Alegria, Matilija Formations; Mar-May; 368 481 619 784.

Orthocarpus purpurascens Benth. var. pallidus Keck. Annual; common; occurring with the above; Mar-May; 540 597.

Pedicularis densiflora Benth. ex Hook. Indian Warrior. Perennial; uncommon; Mixed Chaparral; Matilija Formation; crest; Jan-Jun; 587; Smith, 1976.

Scrophularia californica Cham. & Schlecht. var. californica. California Figwort. Perennial; abundant; Coastal Sage Scrub, N-facing Mixed Chaparral, streambanks, Coastal Bluffs; Monterey, Sisquoc, Matilija Formations; Mar-May; 330.

Scrophularia californica Cham. & Schlecht. var. floribunda Greene.

Perennial; rare; Coastal Sage Scrub; Sisquoc Formation; Sacate Canyon; Mar-May; 183.

SOLANACEAE Nightshade Family

Datura meteloides DC. Toloache. Perennial; scattered; disturbed fields, Cismontane Introduced Grasslands; Marine Terrace Deposits; Mar-Sep; 127.

Nicotiana glauca Graham. Tree Tobacco. Shrub; abundant; moist disturbed areas, roadsides, landslides, Palustrine Scrub/Shrub Wetlands; naturalized; Apr-Aug; 126.

Petunia parviflora Juss. Annual; uncommon; Palustrine, Riverine Emergent Wetlands; Alegria Canyon; Apr-Aug; 707.

Solanum douglasii Dunal in DC. Douglas Nightshade. Subshrub; common; Cismontane Introduced Grasslands, streambanks; Marine Terrace Deposits, alluvial deposits; naturalized; most of the year; 130 226 774.

Solanum elaeagnifolium Cav. White Horse Nettle, Silver Leaf Nettle. Subshrub; uncommon; disturbed portions of Marine Terrace Deposits; naturalized; May-Sep; 665.

Solanum xantii Gray var. hoffmannii Munz. Chaparral Nightshade. Subshrub; scattered; Coastal Sage Scrub; streambanks, Marine Terrace Deposits; Feb-Jun; 154 209.

URTICACEAE Nettle Family

Parietaria hespera Hinton var. californica Hinton. Annual; uncommon; moist rocky portions of Oak Woodlands; Alegria Formation; Alegria Canyon; Mar-Jun; 483.

Urtica holosericea Nutt. Giant Creek Nettle. Perennial; common; streambanks; Jun-Oct; 180 718.

Urtica urens L. Annual; scattered; Oak Savannah, shaded rocky exposures; Vaqueros, Alegria Formations; naturalized; Jan-Apr; 741.

VERBENACEAE Vervain Family

Verbena lasiostachys Link. Perennial; uncommon; Palustrine, Estuarine Emergent Wetlands, Cismontane Introduced Grasslands; May-Sep; 847 848.

Verbena robusta Greene. Perennial; common; Palustrine, Estuarine Emergent Wetlands, seeps, throughout the Ranch; May-Oct; 104 225 424 663.

VISCACEAE Mistletoe Family

Phoradendron tomentosum (DC.) Engelm. ex Gray ssp. macrophyllum (Engelm.) Wiens. Hemiparasite; common; on Sycamore (Platanus racemosa); Oct-Mar; 814.

Phoradendron villosum (Nutt. in T. & G.) Nutt. var. villosum. Oak Mistletoe. Hemiparasite; scattered; on Coast Live Oak (Quercus agrifolia); Jul-Sep; 236 706.

SUBCLASS MONOCOTYLEDONES

AMARYLLIDACEAE Amaryllis Family

Bloomeria crocea (Torr.) Cov. Golden Stars. Bulbous perennial; common; Coastal Sage Scrub away from the immediate coast; Apr-Jul; 479 609.

Dichelostemma pulchella (Salisb.) Heller. Blue Dicks, Wild Hyacinth. Bulbous perennial; common; Coastal Sage Scrub, Cismontane Native Grasslands; Vaqueros, Alegria, Matilija Formations; Feb-Jun; 228.

CYPERACEAE Sedge Family

Carex barbarae Dewey. Perennial; uncommon; perennial streambed; Alegria Formation; Santa Anita Canyon; Apr-Nov; 863.

Carex globosa Boott. Round-fruited Sedge. Perennial; scattered; understory of Oak Woodlands, Chaparral; Matilija Formation; Mar-Sep; 567 797; Smith, 1976.

Carex senta Boott. Perennial; common; streambeds; Mar-Jun; 844 862 864.

Eleocharis parishii Britt. Perennial; scattered; seeps, streambeds; Apr-Oct; 455 704 895 896.

Scirpus cernuus Vahl var. californicus (Torr.) Beetle. Low Clubrush. Perennial; common; Palustrine Emergent Wetlands, seeps; Rincon Formation; Apr-Sep; 421 456 897.

Scirpus maritimus L. (S. paludosus A. Nels.) Perennial; common; Palustrine, Estuarine Emergent Wetlands; May-Oct; 418 666.

Scirpus microcarpus Presl. Small Fruited Bullrush. Perennial; scattered; streambanks, streambeds; May-Oct; 153 734 845.

Scirpus pungens Vahl. (S. americanus of authors). Three Square. Perennial; common; Palustrine, Estuarine Emergent Wetlands; Apr-Dec; 667 738.

IRIDACEAE Iris Family

Sisyrinchium bellum Wats. Blue Eyed Grass. Perennial; common; moist habitats; Cismontane Native Grasslands; color varies from pale sky

blue to purple; Feb-May; 452 542.

JUNCACEAE Rush Family

Juncus bufonius L. var. bufonius. Toad Rush. Annual; common; moist areas, seeps, borders of holding ponds; Mar-Jul; 188 605 606.

Juncus patens E. Mey. Common Rush. Perennial; common; streambeds, seeps, away from the immediate coast; Apr-Jul; 195 250 252 716.

Juncus phaeocephalus Engelm. var. phaeocephalus. Perennial; common; Palustrine Emergent Wetlands; Vaqueros, Alegria Formations; May-Jul; 194 622 623 624.

Juncus tenuis Willd. var. congestus Engelm. Yard Rush. Perennial; scattered; seeps and moist habitats; Matilija Formation; higher elevations; May-Jul; 625 627.

Juncus textilis Buch. Indian Rush. Perennial; rare; mineralized seep in willow thicket; Alegria Formation; Santa Anita Canyon; May-Jun; 846.

Juncus xiphioides E. Mey. Iris Leaved Rush. Perennial; common; open streambeds; Vaqueros, Alegria, Matilija Formations; May-Oct; 173 174 228 253 865.

Luzula subsessilis (Wats.) Buch. Common Wood Rush. Perennial; uncommon; cool wooded slopes near head of Cojo Canyon; Mar-May; Blakley 3472.

LEMNACEAE Duckweed Family

Lemna gibba L. Annual, floating; scattered; streams; Sacate, Honda Canyons; Mar-Oct; 170 902.

LILIACEAE Lily Family

Calochortus albus Dougl. ex Benth. var. albus. Fairy Lantern. Bulbous perennial; uncommon; Cismontane Native Grasslands, Central Coastal Scrub, Matilija Formation; N-facing slopes; Mar-Jul; 885.

Calochortus catalinae Wat. Catalina Mariposa. Bulbous perennial; locally common; Cismontane Native Grasslands; Matilija Formation; N-facing slopes; Alegria Canyon; Mar-May; 818.

Chlorogalum pomeridianum (DC.) Kunth. Bulbous perennial; common; Coastal Sage Scrub, Cismontane Native Grasslands, Alegria, Matilija Formations; N-facing slopes; May-Jul; 880.

Fritillaria biflora Lindl. Chocolate Lily, Mission Bells. Bulbous perennial; uncommon; Cismontane Native Grasslands; Matilija Formation; N-facing slopes; Bulito Canyon, east branch, top; Feb-Jun; 872.

Lilium humboldtii Roetzl. & Leichtl. var. ocellatum (Kell.) Elwes.

Tiger Lily, Humboldt Lily. Bulbous perennial; scattered; shaded streambanks; Alegria, Matilija Formations; Jun-Jul; 292 670.

ORCHIDACEAE Orchid Family

Epipactis gigantea Dougl. ex Hook. Stream Orchid. Perennial; rare; shaded streambanks; Vaqueros, Alegria Formations; Mar-Jul; 405.

POACEAE Grass Family

Agrostis diegoensis Vasey. Thin Grass. Rhizomatous perennial; scattered; Mixed Chaparral, Adenostoma Chaparral; Matilija Formation; Apr-Aug; 562 678.

Agrostis semiverticillata (Forsk) C. Chr. Water Bent. Annual; common; Palustrine Emergent Wetlands, streambanks; naturalized; May-Jun; 772.

Aristida adscensionis L. Annual; scattered; dry S-facing slopes, Coastal Sage Scrub; Alegria Formation, Alegria Canyon; naturalized; Feb-Jun; 478.

Arundo donax L. var donax. Giant Reed, Bamboo. Perennial; rare; Coastal Strand; naturalized; Mar-Sep; 899.

Avena barbata Brot. Slender Wild Oat. Annual; abundant; open habitats, Cismontane Introduced Grasslands; throughout the ranch; naturalized; Mar-Jun; 767.

Avena fatua L. Wild Oat. Annual; common; open Coastal Sage Scrub, Cismontane Introduced Grasslands; Marine Terrace Deposits, Rincon Formation; naturalized; Apr-Jun; 294 301.

Bromus carinatus H. & A. California Brome. Annual, biennial; common; moist habitats; Apr-Aug; 475 717 802.

Bromus diandrus Roth. Ripgut Grass. Annual; abundant; Cismontane Introduced Grasslands, Oak Woodlands; naturalized; Apr-Jun; 296 779.

Bromus madritensis L. Madrid Brome. Annual; common; understory Oak Woodlands; Alegria, Matilija Formations; naturalized; Apr-Jun; 778.

Bromus mollis L. Soft Chess. Annual; abundant; Cismontane Introduced Grasslands, Oak Woodlands, Coastal Sage Scrub, waste areas; naturalized; Apr-Jul; 335 415.

Bromus rubens L. Foxtail Chess. Annual; common; most non-woodland habitats; Mar-Jun; 322.

Cynodon dactylon (L.) Pers. Bermuda Grass, Devil's Grass. Perennial; scattered; moist, sandy disturbed habitats, seeps; 740.

Deschampsia danthonioides (Trin.) Munro ex Benth. Annual Hairgrass. Annual; uncommon; Cismontane Native Grasslands; Marine Terrace Deposits;

Apr-Jul; 486.

Distichlis spicata (L.) Greene var. spicata. Salt Grass. Perennial; locally abundant; Estuarine Emergent Wetlands; Marine Terrace Deposits, Rincon Formation; Apr-Jul; 643.

Echinochloa crusgalli (L.) Beauv. Barnyard Millet. Annual; uncommon; damp disturbed habitats, fields, streambanks, Alegria Formation, Cojo Canyon; naturalized; Jul-Oct; 683.

Ehrharta calycina Sm. Veldt Grass. Annual; common; disturbed Chaparral; Alegria, Matilija Formations; naturalized; 224.

Elymus condensatus Presl. Perennial; common; Coastal Sage Scrub; N-facing Monterey Formation; Jun-Aug; 644.

Elymus glaucus Buckl. ssp. glaucus. Western Rye. Perennial; abundant; steep canyons, Coastal Sage Scrub; throughout the Ranch; Mar-Aug; 441 850.

Festuca arundinacea Schreb. Alta Fescue. Perennial; scattered; Cismontane Introduced Grasslands, waste areas; naturalized; May-Jun; 416 768.

Festuca dertonensis (All.) Asch. & Graebn. (Vulpia dertonensis Volk.). Annual; scattered; Coastal Sage Scrub, Cismontane Introduced Grasslands; Alegria, Matilija Formations; naturalized; Apr-Jun; 442 621.

Festuca megalura Nutt. (Vulpia megalura Rydb.). Foxtail Fescue. Annual; common; waste areas, Cismontane Introduced and Native Grasslands, Palustrine Emergent Wetlands; naturalized; Apr-Jun; 461 571 636 884.

Festuca myuros L. (Vulpia myuros Rydb.). Rattail Fescue. Annual; scattered; Cismontane Introduced Grasslands, Marine Terrace Deposits; naturalized; Mar-May; 387.

Gastridium ventricosum (Gouan) Schinz & Thell. Nit Grass. Annual; scattered; dry, Coastal Sage Scrub; S-facing Marine Terrace Deposits, Alegria Formation; naturalized; May-Sep; 464 480.

Hordeum brachyantherum Nevski. Perennial; uncommon; moist Cismontane Native Grasslands, Marine Terrace Deposits; Alegria Canyon; Mar-Jul; 773.

Hordeum californicum Covas & Steb. Meadow Barley. Perennial; scattered; seeps, Cismontane Native Grasslands, streambanks; Marine Terrace Deposits, Matilija Formation; Apr-Jun; 804 871 889.

Hordeum geniculatum Allioni. Mediterranean Barley. Annual; scattered; Emergent Wetlands, borders of holding ponds, grasslands; naturalized; Apr-Jun; 427 428 628.

Hordeum leporinum Link. Foxtail. Annual; scattered; Cismontane

Introduced Grasslands, disturbed areas near the coast; naturalized;
Apr-Jun; 362.

Lamarckia aurea (L.) Moench. Goldentop. Annual; scattered;
Cismontane Introduced Grasslands; Marine Terrace Deposits; Las Panoches
Canyon; naturalized; Feb-May; 318.

Lolium perenne L. ssp. multiflorum (Lam.) Husnot. Italian Rye.
Annual, biennial; common; disturbed areas, Cismontane Introduced
Grasslands; naturalized; May-Sep; 119.

Melica imperfecta Trin. Coast Range Melic. Bunchgrass; common;
N-facing slopes, Cismontane Native Grasslands, Coastal Sage Scrub;
Mar-Jul; 392 485.

Muhlenbergia microsperma (DC.) Kunth. Annual Muhly. Annual;
uncommon; S-facing slopes, open sandy areas, Coastal Sage Scrub;
Vaqueros Formation; Mar-May; 448B 744.

Oryzopsis miliacea (L.) Benth. Smilo, Rice Grass. Perennial;
common; disturbed habitats, Oak Woodlands, streambanks, Coastal Sage
Scrub, Chaparral; Apr-Sep; 121 204.

Pennisetum clandestinum Hochst. ex Chiov. Kikuyu Grass. Perennial;
locally abundant; Estuarine Wetland borders; Santa Anita Canyon;
naturalized; 661.

Pennisetum villosum R.Br. Feathertop. Perennial; scattered; waste
areas, railroad tracks; Sisquoc Formation; naturalized; Jun-Aug; 276.

Phalaris aquatica L. Harding Grass. Perennial; scattered;
Cismontane Introduced Grasslands, Palustrine Emergent Wetlands, open
disturbed habitats; Marine Terrace Deposits, Alegria, Matilija
Formations; naturalized; May-Sep; 607 860.

Phalaris caroliniana Walt. Annual; rare; Estuarine, Palustrine
Emergent Wetlands; naturalized; Apr-May; 465.

Poa bolanderi Vasey ssp. howellii (Vasey & Scribn.) Keck. Annual;
rare; Alegria, Matilija Formations; N-facing slopes; Apr-Jun; C. Smith,
1976.

Poa scabrella (Thurb.) Benth. ex Vasey. Perennial; common;
Cismontane Native Grasslands; Matilija Formation; Feb-Jun; 789 792
805 837 868.

Polypogon interruptus HBK. Perennial; common; streambeds,
Palustrine Emergent Wetlands; naturalized; May-Aug; 257.

Polypogon monspeliensis (L.) Desf. Rabbit's Foot Grass. Annual;
common; streambanks, Palustrine Emergent Wetlands, seeps, waste areas;
naturalized; Apr-Aug; 197 414.

Secale cereale L. Cultivated Rye. Annual; scattered; fields;

Marine Terrace Deposits; naturalized; May-Aug; 852.

Sorghum halepense (L.) Pers. Johnson Grass. Perennial; rare; disturbed areas, railroad tracks; naturalized; May-Aug; 457.

Stipa lepida Hitchc. var. lepida. Small Flowered Stipa. Perennial; common; Cismontane Native Grasslands, Coastal Sage Scrub; Marine Terrace Deposits, Alegria, Matilija Formations; Feb-Jul; 446 477.

Stipa pulchra Hitchc. Purple Needle Grass. Perennial; locally common; Cismontane Native Grasslands; Marine Terrace Deposits; Mar-May; 302.

POTAMOGETONACEAE Pondweed Family

Potamogeton foliosus Raf. Leafy Pondweed. Annual; scattered; perennial streams, holding ponds; Mar-Nov; 690 701 708.

Ruppia maritima L. Ditch Grass. Annual; uncommon; Estuarine Subtidal Wetlands; Santa Anita Slough; Jun-Nov; Blakley 7184.

TYPHACEAE Cattail Family

Typha domingensis Pers. Narrow-leaved Cattail. Perennial; common; Palustrine, Estuarine Emergent Wetlands; Jun-Jul; 200.

Typha latifolia L. Broad-leaved Cattail. Perennial; common; Palustrine Emergent Wetlands; Jun-Jul; 703.

ZANNICHELLIACEAE Horned Pondweed Family

Zannichellia palustris L. Horned Pondweed. Perennial; uncommon; perennial streams, holding ponds; Rincon Formation, Alegria Canyon; Jun-Oct; 700 708B.

ZOSTERACEAE Eel-Grass Family

Phyllospadix scouleri Hook. Surf Grass. Perennial; common; submerged aquatic in surf zone; May-Jul; 898.

Phyllospadix torreyi Wats. Surf Grass. Perennial; common; submerged aquatic in surf zone; May-Jul; Smith, 1976.

Zostera marina L. var. latifolia Morong. Perennial; common; submerged aquatic in surf zone; May-Jul; Smith, 1976.

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